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## Social Constructivism in Learning: Peer Teaching & Learning

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## Author Biography

Cindy Hayden is an Associate Professor in the Department of Occupational Science and Occupational Therapy in the College of Health sciences at Eastern Kentucky University. She received her Doctorate in Health Education from A. T. Still University and has been teaching at ECU for nine years. Her research interests in the area of Scholarship of Teaching and Learning include interactive quizzes, critical reading, and peer teaching and learning. Dr. Hayden also has research interests in chronic pelvic pain and hand therapy.

Cheryl Carrico, MS, OT/L, is a licensed occupational therapist and Ph.D. candidate in the University of Kentucky's Department of Rehabilitation Sciences. Her current research investigates the experience and effects of meditation for people with impaired attention due to stroke or attention deficit hyperactivity disorder (ADHD). Since 2018, she has served as Assistant Professor in the Department of Occupational Science and Occupational Therapy at Eastern Kentucky University. In the decade prior to that, she was an occupational therapy research specialist at the University of Kentucky's Stroke and Spinal Cord Injury Neurorehabilitation Research Lab, which studies non-invasive neuromodulation to enhance outcomes of upper extremity motor training for adults with impaired movement function.

Cassie Ginn graduated from Eastern Kentucky University in 2011 with a master's in occupational therapy. Her professional experience includes working in inpatient rehabilitation on a specialized brain injury unit. Cassie has a specialty certification and brain injury rehabilitation (CBIS) and has experience with various technologies; BIONESS H200 and RT300 which she has worked to train other therapists on. Additionally, she is a DPAM's approved supervisor in Kentucky. In 2018, Cassie received her clinical doctorate (OTD) from Creighton University, and shortly thereafter joined the faculty at Eastern Kentucky University.

Alexis Felber received a bachelor's degree in occupational science at Eastern Kentucky University and is currently a master's student in the occupational therapy program at Eastern Kentucky University. After graduation, her hope is to start her own practice and offer the services her small hometown desperately needs and deserves.

Shelby Smith is currently a student at Eastern Kentucky University working on her master's degree in Occupational Therapy. In years prior, she received a Bachelor of Arts degree in Exercise Science from Bellarmine University as well as a Bachelor of Science in Occupational Science from ECU. Her research experience includes working directly with the University of Louisville's Kosair Charities Center for Pediatric NeuroRecovery at Frazier Rehabilitation.

# 2020 Pedagogicon Proceedings

## Social Constructivism in Learning: Peer Teaching and Learning

**Cindy Hayden, Cheryl Carrico, Cassandra Ginn, Shelby Smith, and Alexis Felber**

Eastern Kentucky University

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*Social constructivism is an educational theory that can be applied in collaborative ways to facilitate student peer teaching and learning. University faculty may be unfamiliar with how to plan, structure, and instruct students in peer teaching and learning projects while providing an emotionally supportive environment. This article will identify characteristics of course activities that promote peer teaching and learning. Two student examples of a three-component peer teaching module will be highlighted along with the grading rubric. This article also describes an assignment module that was offered in a face-to-face second-year course in a professional allied health program. These assignment guidelines could also be utilized in general education courses and upper level courses in various colleges within the university. The peer teaching and learning model could also encourage student engagement in online synchronous or asynchronous learning.*

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As an educational theory, social constructivism encourages students to be actively involved in their own process of learning (Amineh & Asl, 2015). In a social constructivist classroom, faculty structure this learning process through peer interaction so a collaborative learning process occurs among status equals. This collaborative approach to learning is known as peer teaching and learning (PTL) (Knapp, 2019). In PTL, students discuss concepts; find solutions; and, in general, test and build ideas, skills, and knowledge through relevant activities (Krahenbuhl, 2016). These learning activities are student-led and when students lead, they have a better comprehension of the tasks required of them and improved insight into their own performance (Grover et al., 2017).

### **Types of PTL**

Students can be involved in PTL activities in different ways. The instructor facilitates the activity so that the students are both teaching and learning, regardless of the course activity chosen. In this way, a student's learning process is enhanced, as teaching a new concept necessitates detailed, in-depth attention.

Moreover, learning with and from peers involves interaction and feedback. Deeper or more significant learning occurs with PTL when students have prerequisite skills of thorough preparation, good time management, and good collaboration skills (Grover et al., 2017). These skills can also be strengthened through PTL activities. The next sections give details on several types of PTL.

**Active learning.** Active learning involves students working together to participate in case studies, role playing, and problem-based activities (Wolf et al., 2015). Students who engage in problem-solving activities as a group share an understanding of concepts and how they can be applied to the problems or cases being explored by the group. Active learning contributes to greater knowledge retention and creates a deeper understanding of material than more traditional styles of passive learning (Wolf et al., 2015). Many of the following types of PTL have active learning components but also contain other criteria to further categorize those learning experiences.

**Peer tutoring.** Peer tutoring is when students are paired together to teach a concept or skill to another student or group of students (Uzuner & Aktas, 2016). Student leaders are matched with peers with less experience or training. Students can also be matched with students with learning difficulties (Uzuner & Aktas, 2016). Teaching a concept to another person is often the best learning strategy, as this approach supports students achieving greater learning outcomes. In addition to improved learning outcomes, students have also been known to show greater confidence and report less anxiety (Uzuner & Aktas, 2016). In classroom learning, instructional strategies such as discussion and learning in pairs can be considered peer teaching.

**Cooperative learning.** Cooperative learning occurs in small groups in which there is individual accountability for each student to be prepared and there are positive interdependent group members working together toward one objective (Wolf et al., 2015). An example of cooperative learning is using a jigsaw technique in which the class is divided into multiple groups of learners and these students must collaborate to master a topic or solve a problem. A jigsaw learning strategy involves assigning students to a home group where each student becomes knowledgeable about one concept. Then students rearrange to a second group where each student represents a different concept and each student teaches their concept to the second group of students. Then students reassemble to the home group and teach what they have learned in the second group, and that becomes the jigsaw (Wolf et al., 2015). Other examples of cooperative learning include group discussions and exam reviews.

**Partnerships.** Partnerships in PTL can occur in the same department with other classes, or with other departments. Sometimes partnerships occur between different universities or with a community partner. No matter which partnership is being utilized, the students work together to achieve a wider student learning experience, being exposed to more perspectives than in typical classroom experiences (Lubic-Nawrocka, 2018). These partnerships involve teachers first collaborating to design a curriculum that mimics real-life professional partnerships. Students are therefore involved in more realistic learning opportunities related to their field of study and are more involved in decision making (Lubic-Nawrocka, 2018). Partnerships make excellent learning activities for adult learners of any profession or university program.

**Near peer teaching.** In this type of PTL, students from a cohort participate in learning activities with the prior cohort. For example, students who took a class in a previous semester interact with the next semester's students. Interactions may occur via pairs and/or small groups and entail problem-solving with case studies and presentations. In near peer teaching, newer students have the opportunity to benefit from the previous students' perspectives and the previous students are required to demonstrate long-term retention by instructing their near peers.

The general rationale for this approach is that teaching an idea is the one of the best ways to learn significant, in-depth details about that idea (Gottlieb et al., 2016). This structure impels college students to maximize their learning experience by preparing themselves to answer peers' questions on a given topic and by formulating questions based on other students' peer presentations. Additionally, when students work in groups and are thereafter asked to discuss and share thoughts on what they learned, they are more comfortable with their own questions and have learned how to answer other peers' questions. Substantiating evidence from research on near peer teaching has shown it to be less intimidating than faculty teaching and thus potentially more conducive to learning (Gottlieb et al., 2016). Near peer teaching has been researched in medical schools and other professional education programs with excellent results.

**Student teaching/presentations.** Finally, students also engage in PTL through presentations in which they take turns teaching their peers. Learning by teaching involves extra steps, such as organizing and revising the material, interacting and explaining to other students, and answering questions about what was taught (Thistlewaite, 2017). When students create presentations, they are challenged to create succinct representation of their views, making this a strong pedagogical tool for improved critical thinking & reasoning skills (Wallengren Lynch, 2018).

## **Guidelines for a PTL Project: Module Assignment**

The three faculty authors of this article teach an undergraduate occupational science course entitled *OTS 422: Conditions That Impact Occupation*. The main topic is how various pathological conditions affect daily life activities and function. This topic is entirely new to a majority of the students in the course, most of whom are senior year undergraduates. To enhance the students' grasp of the topic, PTL is implemented via a student teaching/presentation project called a *module*. A module consists of a paper, a PowerPoint presentation to the class, and a video that is embedded in the presentation. The topic of the module is a health condition that the student chooses (e.g., stroke; spinal cord injury; upper extremity fracture). In this way, the module assignment is designed to align with the student's interest and thus be a motivating topic for them. In general, successful use of the module hinges on several factors. Faculty must carefully plan, structure, and instruct students on the format. Students serving as the peer teacher also need to prepare well, including obtaining prior approval of faculty on selected module components before the module is shared with the class at large. To facilitate these outcomes, faculty provide guidelines in the form of a grading rubric. The instructions for each part of the module will be explained, beginning with the paper.

**Module component 1: Paper.** The paper is typed into a template provided by the instructor (Table 1). This template also serves as a set of instructions to the student as well as a grading rubric for the instructor. For quality control purposes, faculty provide a pre-generated list of options in order to set boundaries on what a student may choose. Other quality control mechanisms and aspects of the module are explained below.

**Eastern Kentucky University**  
**College of Health Sciences**  
**Department of Occupational Science and Occupational Therapy**  
**OTS 422: Conditions that Impact Occupation**  
**Module Template and Grading Rubric**

|                      |               |
|----------------------|---------------|
| <b>Student Name:</b> | <b>Topic:</b> |
|----------------------|---------------|

| <b>Points</b> | <b>Required Sections:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10</b>     | <b>Format and posting:</b> Present the information in bulleted short phrases. Type directly into the template. Module work should be between 2 ½ and 3 pages long single-spaced, Arial 12 font. When saving doc, place your last name and first initial before the PowerPoint topic. Turn in under assignments to be graded. Load your Power Point file, doc file, and URL separately in Blackboard under the discussion board (Module 1 or 2, AM or PM section) to give all students access to your work. Hand the instructor a copy of your module just before you give your oral presentation in class on the due date. |
| <b>5</b>      | <b>Etiology:</b> List cause or origin of the disease, predisposing factors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>5</b>      | <b>Epidemiology:</b> List frequency and distribution of the condition in US and world.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>10</b>     | <b>Symptoms:</b> Elaborate by having different sections for a) symptoms, b) complications and c) precautions and contraindications (what you need to be aware of when you are working as a therapist with a person with this condition).                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>10</b>     | <b>Medical Prognosis/typical medical diagnostics and interventions:</b> Include progression of disease, its effect on health/wellness, diagnostic tests/medications/ surgeries.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>10</b>     | <b>Condition's impact on human occupations:</b> Identify how a condition affects valued occupations. Have different sections for a) impact on activities (ADL's, IADL's, rest and sleep), b) participation (play, leisure, and social participation), c) vocational implications (education, work), and d) psychological issues.                                                                                                                                                                                                                                                                                           |



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|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | <b>Current Peer-reviewed OT article:</b> Read and submit a link to a peer-reviewed, evidence-based American Journal of Occupational Therapy or other OT journal article related to the topic published within the last 7 years. If the article does not meet these criteria, you need preapproval at least 1 week before your presentation to use the article. Make sure you list the authors, publication year, article title and journal name, then summarize and synthesize article in 2-3 paragraphs.                                                                                     |
| 5  | <b>Community Resources:</b> List at least 3 client or therapist related resources with contact information: 1 national, 1 state, and 1 local. One of the three community resources needs to be a person or agency with local contact information such as a phone number or address, not a website.                                                                                                                                                                                                                                                                                            |
| 5  | <b>List all references:</b> Alphabetize at least four references (including your text and the current OT article) used in completing the module, use APA style, 7th edition. You can refer to this <a href="#">website</a> .                                                                                                                                                                                                                                                                                                                                                                  |
| 5  | <b>Occupation-based video clip:</b> Select a 3to 5 minute video clip of client symptoms interfering with occupation. The video needs to demonstrate how the condition interferes with valued occupation(s). You need PRIOR approval from the professor to use the video at least 1 week BEFORE your presentation. Email instructor the video link 1 week before you present for preapproval. Once approved, post the URL of the video on the discussion board with your PowerPoint and document. The URL CANNOT be accessed via your PowerPoint because of the overhead projector connection. |
| 5  | <b>Describe video and how condition interferes with occupation:</b> Write 3-4 sentences describing the content of the video, including how the condition interferes with the specific occupation (s).                                                                                                                                                                                                                                                                                                                                                                                         |
| 10 | <b>Oral presentation in class:</b> Be organized and concise with delivery of information conducive to peer learning. Be easily understood using a loud and distinct voice with correct medical pronunciations. The oral presentation is to last no more than 10 minutes and include a 5-7 slide Power Point listing definition of the condition; symptoms, complications, and precautions; condition’s impact on valued occupations; community resources; and the 3-5 minute occupation-based video clip ONLY, in that order.                                                                 |



|            |                                                                                                                           |
|------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>10</b>  | <b>Summary &amp; Synthesis:</b> Write a 2-paragraph summary and synthesis of information collected for this presentation. |
| <b>100</b> | <b>TOTAL</b>                                                                                                              |

**Table 1.** Module Template and Grading Rubric.

The instructor explains the template at the beginning of the course, in person as well as a fifteen-minute recorded audio using the free Screencast-o-matic website. Additionally, students are provided with exemplar module work from former students. The boundaries imposed by the template serve as a uniform structure that helps the student decide what is relevant about an unfamiliar topic. The structure also encourages the student to learn how to communicate in a way that is clinically skillful because of its conciseness. This skill of including information that is to the point and only the most relevant will be needed in future professional settings and may be a departure from previous writing tasks that required students to write more lengthy papers. Moreover, the uniform structure helps the instructor ensure accuracy and makes grading more straightforward. Information included in the module must be the most current, including a peer-reviewed article published in the last five to seven years.

After completing the paper, the student makes it available on the Discussion Board in Blackboard or other LMS such as Canvas. This format makes it possible for their classmates to access the information and save it electronically for use in future settings where a quick reference is needed, such as in later courses or clinical fieldwork. Additionally, the student submits a hard copy of the paper to the instructor just prior to the presentation, so that the instructor may begin looking over and grading the paper during the presentation. The presentation is the second component of the module and is detailed below.

**Module component 2: Presentation.** The student delivers the presentation as a speaker in front of the class. The format is a 10-minute PowerPoint consisting of five to seven slides. The slides summarize selected sections from the module template, including symptoms, complications, and precautions; the condition's impact on valued occupations; community resources; and a three-to-five-minute occupation-based video clip. Several other important qualities for the presentation are specified in the template (e.g., use loud, distinct voice with correct medical pronunciations). Additionally, the occupation-based video clip must be pre-approved by the instructor a week prior to the presentation. Further details on the video clip are explained below.

**Module component 3: Video.** The third module component is a three- to five-minute video, usually from YouTube or Vimeo, that depicts an impairment in occupation secondary to a medical condition. The video selection must receive approval from the instructor one week prior to the presentation. This approval requirement ensures the video meets stated requirements. Students often spent hours viewing videos, only to submit a video for prior approval that did not meet assignment guidelines. Faculty are encouraged to be intentionally specific in assignment directions about what is and is not acceptable in terms of video selection. When reviewing module guidelines for video selection, it is a good idea to spend class time viewing short clips of an acceptable and unacceptable video and have students compare and contrast the differences. It is a good policy to state that if a student spends over two or three hours searching for an appropriate video with no success, it is recommended to contact the instructor for further clarification of search terms. Instructors are also advised to discuss video features in class, such as a good-quality professional video as opposed to a commercial or advertisement for a service or device.

### **Student Perspectives of PTL: Module Assignment**

For this article, two occupational science students at Eastern Kentucky University provided insight into the process of completing the module assignment. These perspectives are detailed below.

**Student module on coronary artery disease (CAD; table 2).** Table 2 shows the paper completed by one of the students, followed by her description of the process to complete the paper.

|                                                                                                                                                                                                    |                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>Eastern Kentucky University</b><br><b>College of Health Sciences</b><br><b>Department of Occupational Science and Occupational Therapy</b><br><b>OTS 422: Conditions that Impact Occupation</b> |                                                                    |
| <b>Name:</b> Student A                                                                                                                                                                             | <b>Module Topic:</b> Coronary Artery Disease (CAD)<br><b>Date:</b> |

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Points</b><br><b>10</b> | <b>Format and Posting</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>5</b>                   | <b>Etiology:</b> Caused by plaque buildup in the walls of the arteries that supply blood, oxygen, and nutrients to the heart. This plaque is composed of deposits of cholesterol and other substances. Over time, the accumulation causes the coronary arteries to narrow and potentially become completely blocked, restricting blood flow. Predisposing factors include age, family history, smoking, high blood pressure, high cholesterol, diabetes, high stress, and a sedentary lifestyle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>5</b>                   | <b>Epidemiology:</b><br>Affects 16.5 million Americans over the age of 20<br>Men are at greater risk after the age of 45<br>The risk for women increases after menopause<br>African-Americans have a higher risk than other races                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>10</b>                  | <p><b>a) Symptoms:</b> Most common symptom is angina (chest discomfort). This discomfort can be described as chest pain, heaviness, tightness, burning, or squeezing. Other symptoms include faster heartbeat, nausea, palpitations, shortness of breath, sweating, and weakness.</p> <p><b>b) Complications:</b></p> <ul style="list-style-type: none"> <li>• Arrhythmia (abnormal heart rhythm)</li> <li>• Myocardial infarction (heart attack)</li> <li>• Ischemic heart failure</li> <li>• Sudden death</li> </ul> <p><b>c) Precautions/contraindications:</b></p> <ul style="list-style-type: none"> <li>• Avoid isometric exercises, exercises that require or encourage holding breath, and raising both arms above head at the same time</li> <li>• Modify activities to decrease workload on the heart</li> <li>• Avoid extreme temperatures and stressors</li> <li>• If signs of cardiac distress signs, stop activity and allow rest</li> <li>• Be aware of current medication usage and their side effects</li> </ul> |

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| 10 | <p><b>Medical Prognosis/typical medical diagnostics and interventions:</b></p> <p><b>Diagnosis:</b></p> <ul style="list-style-type: none"> <li>• Electrocardiogram (EKG)</li> <li>• Echocardiogram</li> <li>• Exercise stress test</li> <li>• Cardiac catheterization</li> <li>• Coronary angiogram</li> </ul> <p><b>Prognosis:</b></p> <p>CAD can't be cured but can be treated. Once diagnosed, with treatment and lifestyle modifications many can continue to live long, active lives.</p> <p><b>Interventions:</b></p> <ul style="list-style-type: none"> <li>• Lifestyle changes including smoking cessation, eating healthy foods, exercising regularly, losing excess weight, and reducing stress</li> <li>• Medications: nitroglycerin, antiplatelet medications (aspirin), anticoagulants (heparin)</li> <li>• Surgical revascularization procedures: <ul style="list-style-type: none"> <li>• Percutaneous coronary intervention/angioplasty (PCI)- a minimally invasive procedure used to widen narrowed coronary vessels.</li> <li>• Coronary artery bypass graft (CABG)-used to restore blood flow to myocardium due to narrowing or occlusion of arteries. Accomplished through bypassing the obstructed artery with a vein from the individual's leg.</li> </ul> </li> <li>• Cardiac rehabilitation</li> </ul> |
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| <b>10</b> | <p><b>Condition's impact on human occupations:</b></p> <p><b>a) Impact on activities</b></p> <ul style="list-style-type: none"><li>• Anxiety about the possibility of another myocardial infarction occurring can result in family members' overprotection, inhibiting the individual's ability to return to their full capacity</li><li>• Some may deny manifestations and limitations and jeopardize well-being by engaging in activities beyond capacity</li></ul> <p><b>b) Participation</b></p> <ul style="list-style-type: none"><li>• Pain, fear, and anxiety regarding potential for myocardial infarction can be incapacitating, limiting participation in activities at home, work, and for recreation</li></ul> <p><b>c) Vocational implications</b></p> <ul style="list-style-type: none"><li>• Work activity shouldn't exceed an individual's limits, so some modifications may need to be made in the work environment</li><li>• Environments with controlled temperatures are preferable</li><li>• Worrying about employer's misperceptions about an individual's condition can lead to significant stress</li></ul> <p><b>d) Psychological issues</b></p> <ul style="list-style-type: none"><li>• Limitation of activities can lead to lowered self-esteem</li><li>• Depression and depressive manifestations are common after cardiac event</li><li>• Extreme fear and anxiety from the unpredictability of condition can be incapacitating</li></ul> |
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|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10</b> | <p><b>Current Peer-reviewed OT article:</b></p> <p>O'Brien, L., Mckeough, C., &amp; Abbasi, R. (2013). Pre-surgery education for elective cardiac surgery patients: A survey from the patient's perspective. <i>Australian Occupational Therapy Journal</i>, 60(6), 404–409. <a href="https://doi.org/10.1111/1440-1630.12068">https://doi.org/10.1111/1440-1630.12068</a></p> <p>The aim of this study was to evaluate cardiac surgery patients' perception of the effectiveness and timing of pre-admission multidisciplinary written information and post-operative verbal education provided by an occupational therapist. Of the 118 surveys completed, 47.3% of respondents revealed that the information offered in the occupational therapy education sessions would have been more beneficial for their understanding and coping if provided prior to surgery. For these participants, their responses revealed that they would have felt better prepared had an occupational therapist seen them prior to surgery and that they were too upset/unwell post-operation to take information in.</p> <p>Additionally, the survey included open-ended questions that were then coded, reflecting the key theme of the responses. When patients were asked which aspects of the post-operative experience they were not adequately prepared for, themes that emerged included appetite change, disturbed sleep, lifting limits, mood changes, and pain. These responses indicate the important role occupational therapist play in educating patients undergoing elective sternotomy in regard to their recovery from the procedure.</p> |
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| 5 | <p><b>Community Resources:</b></p> <p><b>National:</b><br/> Stanford Health Care- 300 Pasteur Drive<br/> Stanford CA, 94305<br/> Phone: 650-725-2621<br/> <a href="https://stanfordhealthcare.org/medical-conditions/blood-heart-circulation/coronary-artery-disease/diagnosis.html">https://stanfordhealthcare.org/medical-conditions/blood-heart-circulation/coronary-artery-disease/diagnosis.html</a></p> <p><b>State:</b> Gill Heart &amp; Vascular Institute-1000 S. Limestone<br/> University of Kentucky<br/> Lexington, KY 40536<br/> Phone: 859-257-1000<br/> <a href="https://ukhealthcare.uky.edu/gill-heart-vascular-institute">https://ukhealthcare.uky.edu/gill-heart-vascular-institute</a></p> <p><b>Local:</b> Norton Audubon Hospital- 1 Audubon Plaza Drive<br/> Louisville, Kentucky<br/> Phone: (502) 636-7111<br/> <a href="https://nortonhealthcare.com/services-and-conditions/heart-and-vascular-care/patient-resources/screenings/">https://nortonhealthcare.com/services-and-conditions/heart-and-vascular-care/patient-resources/screenings/</a></p> |
| 5 | <p><b>List all references:</b></p> <p>Coronary Artery Disease. (n.d.). Retrieved November 22, 2019, from <a href="https://my.clevelandclinic.org/health/diseases/16898-coronary-artery-disease">https://my.clevelandclinic.org/health/diseases/16898-coronary-artery-disease</a>.</p> <p>Coronary Artery Disease: Causes, Diagnosis &amp; Prevention. (2019, September 16). Retrieved November 22, 2019, from <a href="https://www.cdc.gov/heartdisease/coronary_ad.htm">https://www.cdc.gov/heartdisease/coronary_ad.htm</a>.</p> <p>Falvo, D. R. (2014). <i>Medical and psychosocial aspects of chronic illness and disability</i> (6th ed.). Sudbury, MA: Jones and Bartlett Publishers.</p> <p>O'Brien, L., McKeough, C., &amp; Abbasi, R. (2013). Pre-surgery education for elective cardiac surgery patients: A survey from the patient's perspective. <i>Australian Occupational Therapy Journal</i>, 60(6), 404–409. <a href="https://doi.org/10.1111/14401630.12068">https://doi.org/10.1111/14401630.12068</a></p>                                                      |
| 5 | <p><b>Occupation-based video clip:</b> <a href="https://youtu.be/uMV3nCC3XhE">https://youtu.be/uMV3nCC3XhE</a><br/> <a href="https://www.youtube.com/watch?v=uMV3nCC3XhE&amp;feature=youtu.be">https://www.youtube.com/watch?v=uMV3nCC3XhE&amp;feature=youtu.be</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5   | <b>Describe video and how condition interferes with occupation:</b> This video offers insight into Jim Rohan's experience with CAD. He explains that because he wasn't experiencing chest tightness, it took him a while to acknowledge the seriousness of his condition. One aspect of John's life that he did notice was being impacted was his lack of energy when playing golf. He pointed out that before his procedure to remove the blockage, he would get tired around the fourteenth hole and both the swinging and gripping of the club became more difficult.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 10  | <b>Oral presentation in class:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10  | <b>Summary &amp; Synthesis:</b> CAD the most common type of heart disease that occurs when the coronary arteries that supply the heart become narrowed and hardened due to plaque buildup. This accumulation of plaque limits the blood flow to the heart and can come completely blocked. CAD can range from no symptoms, to chest pain, to a heart attack, and some instances even sudden death. It can be diagnosed with several different cardiac exams and interventions often include lifestyle changes, medication, surgical procedures, and cardiac rehab. Individuals with CAD may face various impacts in regard to their activities and participation, their work environment, as well as psychosocial issues. Occupational therapists can help the client address these issues and provide them with both coping strategies and tools to manage their condition. Although there is no cure to CAD, with an early diagnosis and intervention it often times can be managed well. |
| 100 | <b>TOTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Table 2.** First Example of Student-Completed Module Paper

To find information regarding the etiology, epidemiology, symptoms, and medical prognosis, and diagnostic interventions online resources such as the CDC, the Mayo Clinic, the Cleveland Clinic, and the required class textbook titled *Medical and Psychosocial Aspects of Chronic Illness and Disability* were used. Most of this information was straightforward and easy to locate, but it did take time deciding what information was most important to teach peers. In one section of the module work, the impact CAD had on human occupations and daily life needed to be detailed. This required critical thinking as it wasn't information that was clear cut. Additionally, a current peer reviewed article that focused on how an occupational therapist would work with someone with this condition was required. Finding an article from an occupational therapy journal within the last seven years was a bit challenging as there were not many options relevant to the

topic at the time. Lastly, the instructions were to select an occupation-based video to show to peers in class. This was the most fun piece of the project, but it was also the most time consuming. Overall, the completion of the paper took roughly four to five hours. The PowerPoint portion including its creation and the audio recording on each slide took approximately 1.5 hours.

**Student module on myocardial infarction (MI; Appendix 1).** Appendix 1 shows the paper on MI completed by one of the students, followed by her description of the process to complete the presentation and video. Upon completion of the paper portion of this three-part module assignment in OTS 422 (Appendix 1), the student constructed a seven-minute audio presentation to further educate peers on the [chosen topic](#).

The student introduced the topic to peers by defining the condition, which was Myocardial Infarction, more commonly known as a heart attack. Throughout the audio PowerPoint presentation, the student concentrated on signs and symptoms, complications, precautions and contraindications. The student emphasized the condition's impact on occupational performance, shared community resources pertinent to therapists, patients, and their families in terms of education regarding myocardial infarction. The student shared two video clips which depicted the impact of the condition of the occupation of the patient or client. These two video clip links can be found in Appendix 1. Also, two commonly asked questions about heart attacks were added to the PowerPoint presentation and answers to the questions were supplied. The process of creating this presentation was straightforward and took approximately two hours to develop. The instructor for the course provided instruction in how to make an audio PowerPoint for the presentation. Prior to making the audio recording, it is important to have your information organized and concise. This allows for an easy flow and transition for the presenter and audience to follow. Additionally, one should incorporate only the most relevant and current information that has been peer reviewed and thoroughly researched. This presentation permits one to be creative and further explore a topic that sparks their interest.

**Summary of student perspectives on module assignment.** There were several recommendations obtained through the two student perspectives on how to pursue student success when completing this module assignment. The recommendations are as follows:

1. After engaging in extensive research, you want to limit the content to contain the most relevant information. One should strive to be concise and utilize a variety of sources.
2. It is important to realize that presenting can be both challenging and intimidating but we are all in this together!
3. Each of your peers will have varying teaching styles.
4. Showing enthusiasm when presenting demonstrates confidence in your knowledge of the material.
5. Additionally, at the end of each presentation, two peers are required to ask thought provoking questions for the presenter to answer. This displays peer interest on the subject and allows the presenter to further expand on their knowledge of the material.
6. Students can learn from each other in college courses as peers and this is an exciting way to prepare for our future career.

**General summary of module assignment.** Modules are a type of PTL project to help students achieve significant learning and benefit from participation in social practices of learning. Students can find the module format to be less stressful and more enjoyable than traditional, instructor-centric educational environments. By asking the students to present about what they learned, faculty are able to see clearly what concepts students are not yet grasping. Additionally, students are learning on their own, and then discussing various perspectives with their instructor and peers to promote long-term learning.

### **Guidelines for a PTL Project: Student Group Video Development Assignment**

In addition to the module component three video in the OTS 422 class, faculty in the occupational science program at ECU also have a video development assignment that involves peer teaching and learning in a different course, OTS 362: Human Motion for Occupation. In this kinesiology course, students are assigned a small group project. A group of four students write a script, film, and edit a three to five minute instructional video. This assignment is a larger learning challenge to illustrate concepts learned in class throughout the semester and can be a culminating PTL project in lieu of a comprehensive final. Students conceptualize the teaching and learning experience and the assignment adds a greater degree of creativity in working with peers. Videos are then viewed in class by peers and students to select the best student group video. The video is then

used as near peer teaching exemplar of the assignment for future classes. Here are two examples of student video development that were used as peer teaching and learning strategies. The first one is a [rehabilitation scenario](#) with use of the body during daily activities. The second video is an [interactive quiz](#) about planes and axes, utilizing the website Playposit. Both educational videos were developed by a small group of occupational science students. It usually takes five to six hours for groups to create these videos. There is a grading rubric for the group with 20% of the grading being a student's individual contribution to the video project (Appendix 2).

## Conclusion

Peer teaching and learning is a strategy to help students achieve significant learning and benefit from participation in social practices of learning. Students in many disciplines will graduate and go on to teach peers by sharing knowledge important to a career. Peer teaching is an early opportunity for health care students, in particular, to develop and practice skills in teaching so others can learn new knowledge. In a university and profession where lifelong learning is expected and valued, students need to be taught these skills (Duran, 2017). It is a future professional need, not only in healthcare, but in any employment situation where people interact, teach, and learn from each other.

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## Appendix 1

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| <b>Eastern Kentucky University<br/>College of Health Sciences<br/>Department of Occupational Science and Occupational Therapy<br/>OTS 422: Conditions Impact on Occupation</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Name:</b> Student B                                                                                                                                                         | <b>Module Topic:</b> Myocardial Infarction<br><b>Date:</b>                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Points</b><br><b>10</b>                                                                                                                                                     | <b>Format and Posting:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>5</b>                                                                                                                                                                       | <b>Etiology:</b> <ul style="list-style-type: none"><li>• Causes can vary</li><li>• Most common in the mornings</li><li>• Occurs when the flow of blood to the heart is blocked</li><li>• Can be fatal, but treatment has improved dramatically over the years</li></ul>                                                                                                                                                                                                 |
| <b>5</b>                                                                                                                                                                       | <b>Epidemiology:</b> <ul style="list-style-type: none"><li>• Every 40 seconds, someone in the United States has a heart attack</li><li>• Every year, about 790,000 Americans have a heart attack.</li><li>• Heart attacks are more common in men</li><li>• However, a woman having a heart attack is more likely to die than a man</li><li>• Surviving a heart attack ultimately depends on the severity of the condition as well as how quickly it's treated</li></ul> |

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| <p><b>10</b></p> | <p><b>a) Symptoms:</b></p> <ul style="list-style-type: none"> <li>• Pressure, tightness, pain, or a squeezing or aching sensation in your chest or arms that may spread to your neck, jaw, or back</li> <li>• Nausea, indigestion, heartburn, or abdominal pain</li> <li>• Shortness of breath, cold sweats, fatigue, lightheadedness or sudden dizziness</li> </ul> <p><b>b) Complications:</b></p> <ul style="list-style-type: none"> <li>• Abnormal heart rhythms (arrhythmias)</li> <li>• Heart failure</li> <li>• Sudden cardiac arrest</li> </ul> <p><b>c) Precautions/contraindications:</b></p> <ul style="list-style-type: none"> <li>• Precautions: Avoid smoking and drinking alcohol, encourage daily exercise, maintaining a healthy diet, and the continuation of taking prescription drugs.</li> <li>• Contraindications: Old age, tobacco use, high blood pressure, high blood cholesterol or triglyceride levels, obesity, diabetes, metabolic syndrome, family history of heart attack, and stress may increase one’s risk for having a heart attack.</li> </ul> |
| <p><b>10</b></p> | <p><b>Medical Prognosis/typical medical diagnostics and interventions:</b></p> <ul style="list-style-type: none"> <li>• Progression: In more severe cases, open heart or bypass surgery is needed. In mild cases, stents may be put in place and/or medication can be given.</li> <li>• Effect on health/wellness: Myocardial Infarction can affect many body symptoms and one’s overall ability to function depending on the severity and damage to the heart.</li> <li>• Diagnostics: Medical assessments including family history, a physical exam, exercise stress test, nuclear heart test, heart CT scan or heart MRI can be done.</li> <li>• Interventions: Drugs that reduce blood clotting and aid in maintaining blood flow, clot-busting (thrombolytic) medicines, and supportive medicines such as beta blockers and ACE inhibitors are common medications prescribed after having a heart attack. Cardiac rehabilitation and oxygen therapy are highly recommended interventions for individuals who have survived a heart attack.</li> </ul>                         |



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| 10 | <p><b>Condition's impact on human occupations:</b></p> <p><b>a) Impact on activities:</b></p> <ul style="list-style-type: none"> <li>• One should wait 2-3 weeks before engaging in sexual activity</li> <li>• Lifestyle change is recommended after a heart attack such as increasing physical activity</li> <li>• Cardiac rehabilitation is advised</li> </ul> <p><b>b) Participation:</b></p> <ul style="list-style-type: none"> <li>• Social support is key to heart attack recovery</li> <li>• Most leisure activities such as gardening, playing golf, dancing, and swimming are recommended and still feasible</li> </ul> <p><b>c) Vocational implications:</b></p> <ul style="list-style-type: none"> <li>• Work restrictions depend on severity and damage of heart attack</li> <li>• Easing back into work gradually to prevent relapse</li> <li>• Most individuals retire if eligible after having a heart attack</li> </ul> <p><b>d) Psychological issues:</b></p> <ul style="list-style-type: none"> <li>• Depression and insecurity are common emotions felt after having a heart attack</li> <li>• Feeling dependent on others</li> <li>• Anxious feelings of a reoccurrence</li> </ul> |
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| 10 | <p><b>Current Peer-reviewed OT article:</b><br/> <a href="https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1090&amp;context=ojot">https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1090&amp;context=ojot</a><br/>         Authors: Drosselmeyer, J., Jockwig, A., Kostev, K., Heilmaier, C.<br/>         Publication Year: 2014<br/>         Title: Occupational Therapy After Myocardial or Cerebrovascular Infarction: Which Factors Influence Referrals?<br/>         Journal: The Open Journal of Occupational Therapy<br/>         The purpose of the study was to determine how many patients received occupational therapy after experiencing brain or cardiac infarction in a specific patient population, how long it took until the first therapy after the event, and which factors influenced whether a patient did or did not receive occupational therapy. The study population included a total of 7,440 subjects from 10 different cardiologists' practices. Data was collected from the IMS Disease Analyzer database and was observed over a three-year period.<br/>         The researchers found that younger age, a myocardial infarction (MI) diagnosis, and the presence of hypertension positively influenced referral rate and time. Meanwhile, risk factors such as adiposity delayed therapy. The researchers also found that the chance of being offered occupational therapy increased with younger age, a history of MI, and the presence of hypertension.</p> |
| 5  | <p><b>Community Resources:</b><br/> <b>National:</b> Cleveland Clinic: Heart Attack Recovery and Cardiac Rehabilitation Center<br/> <a href="https://my.clevelandclinic.org/health/diseases/17055-heart-attack-recovery-cardiac-rehabilitation/prevention">https://my.clevelandclinic.org/health/diseases/17055-heart-attack-recovery-cardiac-rehabilitation/prevention</a><br/> <b>State:</b> University of Kentucky Hospital: Heart Attack Emergency Care Clinic<br/>         800 Rose, ST.<br/>         Lexington, KY 40536<br/> <b>Local:</b> Baptist Health Richmond<br/> <a href="https://www.baptisthealth.com/richmond/Pages/services/heart-care.aspx">https://www.baptisthealth.com/richmond/Pages/services/heart-care.aspx</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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| 5  | <p><b>List all references:</b></p> <p>American Heart Association. (2019). <i>Heart Attack</i>. Retrieved from: <a href="https://www.heart.org/en/health-topics/heart-attack">https://www.heart.org/en/health-topics/heart-attack</a></p> <p>Center for Disease Control. (2019). <i>Heart Attack</i>. Retrieved from <a href="https://www.cdc.gov/heartdisease/heart_attack.htm">https://www.cdc.gov/heartdisease/heart_attack.htm</a></p> <p>Drosselmeyer, J., Jockwig, A., Kostev, K., &amp; Heilmaier, C. (2014). Occupational therapy after myocardial or cerebrovascular infarction: Which factors influence referrals? <i>The Open Journal of Occupational Therapy</i>, 2(3). <a href="https://doi.org/10.15453/2168-6408.1090">https://doi.org/10.15453/2168-6408.1090</a></p> <p>Family Doctor. (2019). <i>Tips for Recovering and Staying Well After a Heart Attack</i>. Retrieved from: <a href="https://familydoctor.org/tips-for-recovering-and-staying-well/">https://familydoctor.org/tips-for-recovering-and-staying-well/</a></p> <p>Mayo Clinic Staff. (2019). <i>Heart Attack</i>. Retrieved from <a href="https://www.mayoclinic.org/diseases-conditions/heart-attack/symptoms-causes/syc-20373106">https://www.mayoclinic.org/diseases-conditions/heart-attack/symptoms-causes/syc-20373106</a></p> |
| 5  | <p><b>Occupation-based video clip:</b></p> <p><a href="https://www.youtube.com/watch?v=_JI487DIgTA">https://www.youtube.com/watch?v=_JI487DIgTA</a></p> <p><a href="https://www.youtube.com/watch?v=cswS5dPo1-4">https://www.youtube.com/watch?v=cswS5dPo1-4</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5  | <p><b>Describe video and how condition interferes with occupation:</b></p> <p>The first video portrays a staged experience of a woman performing her daily occupations while experiencing common symptoms of a heart attack. As her symptoms progressed, she could not adequately perform her daily occupations. She began running into kitchen appliances, holding her jaw and arm indicating pain and discomfort, incorrectly cutting crust off of a sandwich, and dropping a plate. After reading heart attack symptoms, she finally acknowledged her actions and called 911.</p> <p>The second video portrays a man who survived a heart attack and tells of how his life changed after experiencing it. Less than a year after his attack, Sherman Wood was running a race to give back to the hospital that saved his life. His quality of life increased after his unfortunate experience due to obtaining a higher appreciation of heart health and physical exercise.</p>                                                                                                                                                                                                                                                                                                                                     |
| 10 | <p><b>Oral presentation in class:</b> <a href="https://www.youtube.com/watch?v=dpYXMxU7AJk">https://www.youtube.com/watch?v=dpYXMxU7AJk</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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| <p><b>10</b></p>  | <p><b>Summary &amp; Synthesis:</b></p> <p>Myocardial Infarction, universally known as a heart attack, is one of the most common heart conditions experienced by people across the globe. It is defined as a life-threatening condition that occurs when blood flow to the heart is suddenly cut off. Although the severity and symptoms vary depending on the individual, heart attacks are more frequently seen in older aged males.</p> <p>Symptoms of myocardial infarction include pressure in the head, feelings of tightness, pain, squeezing, or aching sensation in the chest or arms that could potentially spread to one’s neck, jaw, or back, and shortness of breath. The process of diagnosing individuals with having experienced a heart attack may include medical exams of family history, a physical exam, exercise stress test, nuclear heart test, and a heart CT or MRI scan. In the case of most forms of myocardial infarction, there are preventative measures one can take to avoid having a second. A few measures include avoiding smoking and drinking alcohol, engaging in daily physical activity, and maintaining a healthy diet. Occupational, physical, and dual antiplatelet therapies may also be used as interventions to aid in the prevention of a possible future heart attack and promote overall health and wellness.</p> |
| <p><b>100</b></p> | <p><b>TOTAL</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Appendix 2

### OTS 362 Video Group Assignment Grading Rubric

| Topic of Video:<br>Names of Student Producers: |                                                                                                                                                          | Comments                |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 10                                             | Topic and scope of video discussed and approved by course instructor prior to videotaping, name of video topic and students' names at beginning of video |                         |
| 20                                             | Video covers approved topic and scope and conveys information to peers and instructor in an informative way                                              |                         |
| 10                                             | Video is between 3-5 minutes in length, with background solid wall color, no distracting items, foreground in focus                                      |                         |
| 10                                             | Appropriate professional dress and language seen on video, good voice quality, sufficiently loud and clear to hear directions                            |                         |
| 20                                             | Stand-alone instruction, accurate so that Instructor/peers able to view the video and understand its content                                             |                         |
| 10                                             | Able to access on YouTube                                                                                                                                |                         |
| Up to 80 points                                | Total Group Grade                                                                                                                                        |                         |
| Up to 20 individual points                     | Each student emails instructor a description of his/her role in making the video, student made a significant contribution to the video                   | Total individual grade: |
| Up to 100 points                               | <b>Your final grade</b>                                                                                                                                  |                         |