

The Development of Technological Pedagogical Content Knowledge (TPACK) in Instructors Using Quality Matters Training, Rubric, and Peer Collaboration

Cheryl L. Ward, Ph. D.
Xin Liang, Ph. D.
Wendy Lampner, MS.
University of Akron

Quality in online courses is a current topic of interest in higher education as more universities find it necessary to offer coursework in online environments to meet the growing needs of busy adult learners. The growth of online learning in higher education can be viewed through different stakeholder perspectives: instructors hoping to meet the needs of adult and distance learners, administrators hoping to reduce campus costs, and students looking to combine school, work and life through the convenience of flexible learning environments. The needs of these varied stakeholders have provided urgency in many institutions to implement processes to move existing coursework online. Although online learning is growing, Seaman (2009) reports that faculty believe that online learning outcomes may be inferior to those for face-to-face instruction. Seaman asks “are the perceptions about an inferior learning environment for online learning false and do such perceptions need to be countered with data? Or are they accurate, and online learning needs to improve its pedagogy?” (p. 40). The report shares that less than 30% of faculty surveyed said they were motivated to teach online because of any pedagogical advantage (Seaman, 2009).

Pedagogy is central to the quality development of online course design and that the TPACK (Technological, Pedagogical, Content Knowledge) conceptual framework is key in enabling instructors to develop new schema for a re-conceptualization of content, pedagogy and technology. The theoretical framework is being used extensively in practice to explain the complex relationship between content, pedagogy and technology knowledge and how this knowledge is used in teaching and learning. Based on Shulman’s work in 1986 on PCK (pedagogical content knowledge) (Shulman, 1986) Mishra and Kohler address the complex, multifaceted and contextual nature of teacher knowledge in their conceptual framework shown in Figure 1.

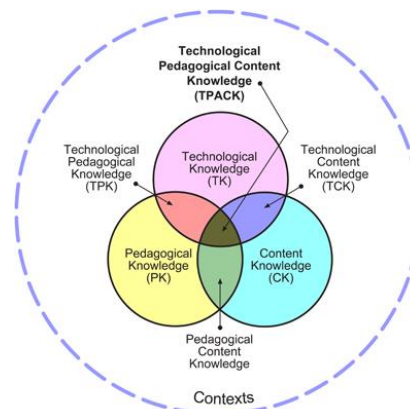


Figure 1. *TPACK* Conceptual Framework Model (Mishra & Koehler, 2006)

The TPACK framework suggests that content, pedagogy, and technology play unique and interactive roles in the teaching and learning process. Koehler and Mishra (2009) contend that teaching with technology is difficult because it requires an “interweaving of many kinds of specialized knowledge” (p. 61).

Cox and Graham (2009) suggest research should focus on how teachers acquire TPACK; specifically how do they acquire that specialized knowledge and what types of activities, training, or peer learning might contribute to this knowledge development. We posit that use of a quality process called Quality Matters helps instructors develop this complex knowledge that enables them to discuss, develop, and implement more effective online learning.

The QM process involves faculty in a peer review program to certify the quality of the design of online and blended courses. The QM program includes the QM Rubric, a Peer Review Process and QM Professional Development. The QM Rubric is based on research-supported, best practices and has a scoring system and set of online tools that help facilitate the course evaluation by the review team (Quality Matters, 2011).

The purpose of the project is to study the process of how the QM rubric and QM training help instructors develop TPACK knowledge that enables them to discuss, develop, and implement more effective online learning. The research questions guiding the study are:

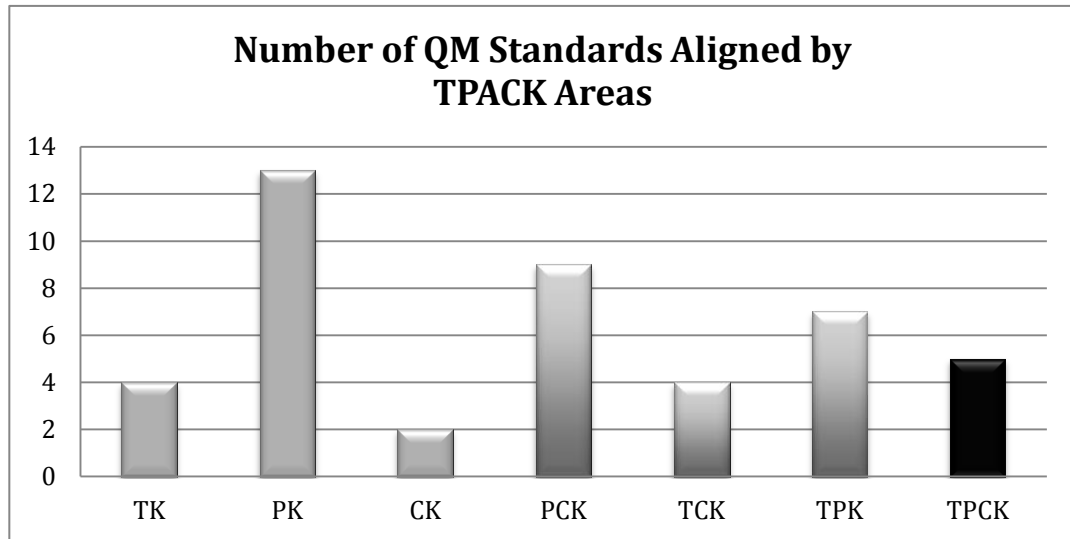
- Is QM rubric consistent with TPACK framework to help instructors construct knowledge in quality design and online instruction?
- How is QM rubric implemented and integrated as a catalyst to inform and guide online instructors for quality design and instruction?

Alignment of the QM Rubric with TPACK

An alignment between the QM rubric and the TPACK conceptual framework was done to determine if any gaps existed between the rubric and the six areas of the framework. Three professors of instructional technology and three instructional technology students did independent alignment processes with the TPACK framework and the QM Rubric. All of the professors and students were familiar with the TPACK conceptual framework and had been exposed in some way to the QM rubric. The aligners were given a document with the six areas of TPACK explained and placed in a chart, then the professors and students took each rubric standard and decided which TPACK area it aligned with in terms of knowledge development. For example, standard 4.3 “The instructional materials have sufficient breadth, depth, and currency for the student to learn the subject” was aligned with Content Knowledge (CK), and the 1.2 standard “A statement introduces the students to the purpose of the course and to its components; in the case of hybrid course, the statement clarifies the relationship between the face-to-face and online components” was aligned with Technological Pedagogical Knowledge (TPK). Although the purpose of this study was not the development or perfection of this alignment tool, a short discussion of how it was used is appropriate.

One premise of this study is that the QM Program can inform and facilitate knowledge growth in the TPACK areas. Through the process of professional development, rubric study and use, and peer collaboration, instructors become engaged in discussions and work focused on the use of technology in online course development. This work has the potential for the *perfect storm of technology, pedagogy, and content* or

knowledge development in the TPACK conceptual framework. So most sessions with instructors moving to online development do not include discussions about pedagogy or content. The discussion focuses on simple conversion of existing material using technology. The alignment shows that the QM Rubric is fairly well aligned with the TPACK conceptual framework. The following chart shows the alignment in a quantitative way and the full alignment document is provided in the Appendix.



It was interesting that a rubric that purports to only address the design elements of an online class align so highly with the pedagogical elements in the TPACK conceptual framework. This alignment supports initial contentions that the elements of the QM Rubric foster discussion and knowledge development in more areas than just design of these environments. Technological, pedagogical and content discussions are overlapping and connected in a dynamic way that result in inability to discuss or work on them in isolation for online course development.

Design

This study applied typical case study method to select the cases to accumulate data addressing the two research questions (Gall, Gall & Borg, 2010). Four faculty participating in the QM training were selected for in depth analysis. The purpose of selecting four faculty in four different colleges participating in the same QM training session was for maximum variation and cross case comparison (Creswell, 2002). Each of the four participants was considered a unit for data analysis.

In order to assess the impact of QM training to help inform and guide instructors in the development of TPACK and in the design of quality online instruction, multiple data sources were collected. Data sources included the observation of the content, structure, organization of the course design, observation journals on student instructor interaction, student engagement, discussion transcriptions, and in class activity participation to identify themes and monitor instructional change. Technological, pedagogical, content knowledge were evaluated pre-and post QM course for each participant. Face-to-face interviews were conducted before participating in QM training.

As a follow up component for data triangulation, the four participants were asked to share their experience of how learning and applying the QM rubric, TPACK model and peer collaboration in QM course changed their methods to design, deliver, instruct, and communicate in an online learning environment.

Participants

Four participants were recruited after they finished QM training. They provided the same courses they designed before and after QM for the research team to review. They also gave permission to the researchers to observe their online courses and student-instructor interaction. Using maximum variation case selection approach, the four participants selected represent diverse academic disciplines, teaching, technology integration experiences, and academic ranking. The characteristics of the four faculty are presented in Table 1.

Instructor	BM	LH	MJ	JB
Discipline/Ph.D.	Family & consumer sciences	Philosophy of education	English, composition	Criminal Justice
Gender	Female	Female	Male	Male
Professional Rank	Assistant	Professor	Professor	Associate
Teaching experience (years)	20	16	21	10
Online teaching experience	6/7 years	3/4 years	12	10
First online class developed	2003/4	2006/7	1998	2005
Has been online learner	No	No	No	Yes
Blended/Full Online	Both	online	Both	online
Students	Undergrad	Hybrid	Undergrad	Undergrad
TK - Training	Yes	No	No	Yes
PK-Training (online teaching training)	No	No	No	Yes
Technology experience/used	WEBCT, blackboard, springboard	WEBCT, springboard	Own websites, WEBCT, springboard	WEBCT, springboard

Table 1. Characteristics of participants

Description of QM Professional Development Process

The *Quality Matters in Online Course Design* training developed at the sponsoring university is designed for faculty members with minimal experience in online instruction or minimal knowledge of Quality Matters who want to know more about how to design a course that meets quality standards. The course has been designed to meet all of the required and essential Quality Matters standards.

Participants learn about each standard in the QM Rubric and how to design elements of an online course. Specifically, the course objectives focus on the participants

ability to describe the Quality Matters process, describe the QM rubric, apply the eight (8) general QM review standards and 40 specific standards to a course, and to develop a quality online course that meets all QM required standards and therefore would be eligible to receive Quality Matters recognition.

For each standard, the course includes an explanation of the standard's meaning, an explanation of the types of activities the instructor can include to meet the standard, and a student perspective for the standard. The student perspective is presented using a story telling approach with two fictional students in an attempt to help contextualize the standards of the rubric. Fred is a face-to-face student and Wilma is an online student. The story includes a description of the student experience for both Fred and Wilma as it relates to each standard. The standards are organized into six modules. The course also includes two introductory modules. The first introductory module introduces the course, the expectations, navigation, and all of the components that instructors should include in a course to help students become acclimated to the learning environment. The second introductory module provides an introduction to Quality Matters including the key components of the Quality Matters process, the criteria of a QM peer review team, the key steps of a QM review, the potential benefits that the QM process can provide to an instructor, and the purpose of alignment between learning objectives, activities, and assessment in an online course.

Data analysis procedures

Independent reviewers using the QM rubric reviewed the online course design and implementation. Each participant's online courses were submitted before and after QM training and were scored by the independent reviewers. Content analysis was conducted by the researchers to examine the alignment with TPACK. Interviews were recorded and transcribed by a professional qualitative researcher. Three separate independent researchers in the team with separate coding themes read the transcripts. Then the themes were compared, merged, and selected to allow the students experiences and online course design features to emerge. Quality design and instruction in this study was measured comparing baseline and exit observation data regarding course design, delivery process, instructional interaction, and participants' feedback using the QM rubric through the lens of the TPACK framework.

Findings

Multiple data resources collected in the study revealed that becoming online learners themselves for the QM training helped the participants understand the needs of online learners. The QM rubric increased the instructors' knowledge of the importance of aligning learning objectives to assessment, instructional activities, and technology integration. All four participants had a positive gain in meeting QM standards reviewed by independent reviewer using QM rubric comparing their pre and post QM training. None of the four participants reached QM quality standard with their online course before participating QM training course. Their obtained scores by the external reviewers ranged from 51 to 72. After the QM training and course modification, all four participants in the study reached QM standards with score of 85 reviewed by independent reviewers. Table 2 presents the participant's scores for the online courses submitted before and after QM training.

Table 2 QM Rubric Rating of the Four Online course before and after QM Training

Instructor	BM			LH			MJ			JB		
	Pre	Post	Growth	Pre	Post	Growth	Pre	Post	Growth	Pre	Post	Growth
Overview	5/11	11/11	54.55%	6/11	11/11	45.45%	7/11	11/11	36.36%	5/11	11/11	54.55%
Learning Objectives	5/14	14/14	64.29%	11/14	14/14	21.43%	11/14	14/14	21.43%	5/14	14/14	71.43%
Assessment	11/13	13/13	15.38%	11/13	13/13	15.38%	13/13	13/13	0.00%	13/13	13/13	0.00%
Resources	6/9	9/9	33.33%	9/9	9/9	0.00%	9/9	9/9	0.00%	6/9	9/9	33.33%
Engagement	8/10	10/10	20.00%	8/10	10/10	20.00%	7/10	10/10	30.00%	8/10	10/10	20.00%
Technology	12/14	14/14	14.29%	14/14	14/14	0.00%	13/14	14/14	7.14%	12/14	14/14	14.29%
Learner support	1/6	6/6	83.33%	3/6	6/6	50.00%	6/6	6/6	0.00%	1/6	6/6	83.33%
Accessibility	6/8	8/8	25.00%	8/8	8/8	0.00%	6/8	8/8	25.00%	1/8	8/8	87.50%
Total	54/83	85/85	34.94%	70/83	85/85	15.66%	72/83	85/85	13.25%	51/84	85/85	39.29%

Discussion of Themes

Initial Transition to Online Instruction-Delivery Mode Change

The instructors indicated in their interview that they were expected to teach online whether or not they feel they are prepared or that the modality was chosen due to a strong research base to suggest that online instruction is of better quality. When the participants were asked what motivated them to transition their instruction to online, they often outlined the following reasons:

- being flexible and serving the needs of non-traditional students;
- seeing online as the trend for higher education and want to “jump on the bandwagon”;
- meeting the institutional and programmatic needs to shift courses online;
- seeing a better fit of technology skill and course content to move the course online;
- getting better evaluation from students.

Instructors shared these thoughts in their interviews:

“As long as students finish their assignment and turn in everything on time, they do not have to commute to campus. So I think the students really enjoy the flexibility. That's the number one reason that students would like to choose online class, and the number 1 reason for me to teach online.”

“Really smart students who view online as a way to get through content quicker because they're more advanced and then students who take online because their circumstances prevent them from either coming to campus or something like that.”

“I knew that a lot of students were not able to come on campus to take the classes. So that was pretty much my motivation. Back in '98 everything was pretty new.”

“So once established, then repeat classes for the next semester, for the next semester it could be easier”

These instructors realize that there is a need for instructors to be flexible in online learning environments. They were very sensitive about online learners' need and understand that online learning is very different from traditional face-to-face classroom environment. However, when these instructors planned to move forward to online instruction, what they considered the most was still delivery mode change. What they did most often was to change the format of the course content and loaded the existing materials into a learning management system. Because the instructors were not online learners themselves, their knowledge about the characteristics of online instruction and online learners' needs, and appropriated instructional strategies were limited. The initial development of their online courses mainly involved the duplication of the course materials into the learning management system. When asked about how they transition to online instruction, the common responses included:

“I think the first one that I did I duplicated my classroom experience. So we meet sixty times I did sixty lessons. Ok and I probably did that for a couple of years and then stopped doing that. Because they were a lot of things that I could combine into one lessons or more simply than to have two lessons. And so I got away from the classroom organization that I would do. So I don't follow where I have to have one lesson for each classroom session that I would have”.

“Well the structure was just like a classroom course. That’s how it was basically structured. To put it on a website um, you know it just went through the university's server.”

I sort of convert my lecture or PowerPoint presentation into written text. I call it guidelines or guide to the seminar, but it is overly text oriented.”

“As I mentioned, I had everything. Contents, I had everything before and I did have the experience teaching with Blackboard, so for me, I loaded up everything real quickly and I knew, I sort of knew what to do, every day, every week.”

Challenges in instructional design and course implementation

It is also very noticeable as the online courses developed, the instructors began experiencing unexpected challenges unique to online learning and teaching and realized that instructional modifications were needed.. When asked about some unexpected challenges they faced in their first online courses, common responses from them included:

- Students had different levels of preparedness for online work;
- Student were curious about online work, but then realized that online was actually more work in terms of reading and writing which may not be a fit for their learning style;
- No pedagogical or content training had been available for instructors transitioning to online teaching;
- Limitation of the learning management system can hinder implementation of pedagogical course planning;
- Requirements may be too mechanical and rigid to encourage interaction among learners;
- Content presentation lacks interactive and diverse media to arouse student interest;
- The amount of time commitment in online instruction can be overwhelming.

Unsystematic ways to address the challenges and students needs

With these challenges, the instructors began thinking different ways they could modify their online instruction and development of online learning. However, there was a lack of conceptual framework to guide design or instructional decision to improve their online courses. They did not have a process to guide their development or a framework to help them understand how technological decisions might support certain pedagogies or content. For example one instructor used educational psychology principle and learning theory as his framework to organize his online classes and instructional decisions.

“My PhD program I did a lot with Russian psychology. And so that kind framed how I was going to organize the class, because everything had to go in very sequenced steps.”

Other modifications include adding diverse media, adjust load for assignment, assignment requirement and integrate assessment to encourage learning such as:

“Just like in the classroom portion may change assignments. I may change the online course too so the number of lessons really depends on what I'm trying to focus on. If I see they have problems with APA then I may devote a little more to that.”

“But I d want to incorporate multi media, and really I want to have my own video podcast or audio podcast, so I am referring to, you know, have a video, and then my teaching, and then PowerPoint presentation, the slide, and I try to keep it to 30 minutes so it would not become to overwhelm, and I want to encourage students to post their video. I mean to videotape their discussion...”

“ I've really experimented quite a bit with um, with how to organize the class in terms of deadlines. And I still have yet to come up with something that satisfies me. Because when I adhere to strict deadlines then the students who normally are behind are constantly behind and then plus they are penalized which doesn't help them at all. And then when I have a little bit looser deadlines it picks up the stragglers but they kind of you know, I don't think they go through the course like they should. I really don't know how to address the deadline issues with the online courses.”

Connecting Instructional Objectives to Course Design as a System Change-the Role of QM Rubric

Instead of thinking about course change when problem occurs, instructors reported to be more aware of their teaching strategies and online instructional design more systematically by using the aspects of QM rubric. When asked *“What do you think are the elements of a quality online course?”* all four instructors indicated that a quality online course should begin with clear instructional objectives and specific direction for students to follow. Further the instructors realized that the core content knowledge, instructional design, delivery procedures, relevant assessment components are key indicators to help reaching these instructional objectives.

QM training and the use of QM rubric provided a template for the instructors to examined the different components of instructional design systematically to motivate learning and student engagement. These instructors reported that:

“The rubric helped me focus my questions more towards the objectives that that particular assignment was trying to get across.”

“Using the rubric, it provided me with a “map”, or a “framework” that I can design my course. The number one lesson I learned was the online classroom should offer clear instructions and expectations to the students, and then develop lessons to engage

students in the online learning environment. In the past, I only had guidelines on the homepage, but I think more about how I can make the instruction more instructive, and how to use survey to get feedback from the students.”

“I am more mindful of students learning experiences and how I can make source more engaging and so students would be more participatory. Sometimes students don’t so many postings, so quizzes help.”

“Every module is very clear about how the material that they are learning is in sequence with the learning outcomes and the competencies that we are striving for.”

Connection of TPACK to Instructional Design to Change the Way to Teach

When the instructors shared their learning and instructional design experiences after they completed their quality matter training classes, they all indicated some degree of integration of technology, pedagogical content knowledge into their instructional design and course delivery. When they talked just about course design, they would automatically include content and pedagogy, and the overlapping knowledge areas of pedagogical content knowledge, technological pedagogy knowledge, or technology, pedagogical content knowledge. For example one instructor told the researchers that when he was designing the course, he looked at learning objectives, the course content each week, and took a closer look at the assessment and measurements.

“I was measuring the objectives for the content knowledge. I was still working on resources and materials-that needs to be built up a little bit more.”

While realizing clear learning objectives for course content needs to be connected to developing appropriate instructional strategies, the instructor was thinking of modifying his instructional strategies and seeking for viable technology tools to support his pedagogical decision.

Discussion

Even though QM training and the QM rubric did not specifically introduce the Technology Pedagogical Content Knowledge conceptual framework to the instructors, it is clear that their knowledge increased in the areas of technology, pedagogy and content. The learning experiences they shared with the researchers about the QM training also demonstrated that they grew to be more sophisticated online instructors because of the way they designed, modified, and implemented their online courses through the knowledge they gained.

The data analysis results from this study suggest a developmental model that depicts a few key transitional points in order to become an effective online instructors, and how QM training can effectively consider these transitional points to deliver the training more efficiently to enhance the quality of online course with more explicit guidelines to not only course design, but permeate to the other aspects of online teaching and learning.

Our research question *“Is QM rubric consistent with TPACK framework to help instructors construct knowledge in quality design and online instruction?”* focused on the instructors’ ability to increase their technological pedagogical content knowledge through

their use of the QM rubric. Data showed that instructors' knowledge increased and their ability to design online courses improved. Data on the second question, "*How is QM rubric implemented and integrated as a catalyst to inform and guide online instructors for quality design and instruction?*" showed that the QM rubric and peer collaboration in the QM training course helped instructors develop TPACK and engage in work on content and pedagogy as well as course design. Online courses met the QM rubric requirements across the board after their training. Instructors also were able to articulate with more intention ideas about how they choose pedagogy and supported certain content with technology. Research showed that QM training and implementation of the QM rubric increase technological, pedagogical content knowledge in instructors working on the development of quality online coursework.

Resources

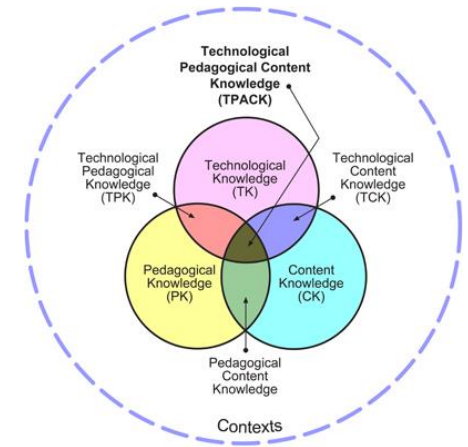
- Cox, S., & Graham, C. R. (2009). Diagramming TPACK in practice: Using an elaborated model of the TPACK framework to analyze and depict teacher knowledge. *TechTrends*, 53, 5. p. 60-69
- Creswell, J. (2002). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Upper Saddle River, NJ: Pearson Education.
- Gall, M., Gall, J., & Borg, W. (2010). *Applying Educational Research*. Allyn & Bacon. New York: New York.
- Koehler, J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054.
- Quality Matters (2011). What is the QM Program? Retrieved March 30, 2011, from <http://www.qmprogram.org/welcome>
- Seaman, J. (2009). *Online learning as a strategic asset volume II: The paradox of faculty voices: Views and experiences with Online Learning* :Babson Survey Research Group.
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.

Appendix

Alignment of the QM Rubric Standards within the TPACK conceptual framework

This document is initial work in the alignment of each rubric standard within the conceptual framework.

This alignment shows how each of the rubric items contributes to an instructor/developers growing knowledge in the areas of Technology, Pedagogy, and Content knowledge as well as the dynamic overlap areas indicated in the diagram. TPACK research posits that the use of technology in teaching and learning is a complex and wicked problem that required new sets of knowledge to be developed by instructors especially in the areas of TPK, TCK and TPCK. The use of technology for learning and teaching has typically been viewed as a simple task of integration, but we find that it is a much more complex set of knowledge and skills.



Professional development using the concepts of Quality Matters intends to focus only on course design. Our research shows that rich discussions in the areas of content, pedagogy, and technology result from the application of the QM rubric and professional development. Discussion in these areas is a core part of creating a quality online course. Although course design is important, discussion around TPACK becomes core to the establishment of a quality online course.

<p>TPCK a knowledge of the technology-pedagogy-content interaction in the context of content-specific instructional strategies</p>	<p>1.2 A statement introduces the students to the purpose of the course and to its components; in the case of hybrid course, the statement clarifies the relationship between the face-to-face and online components. TPCK 6.6 Instructions on how to access resources at a distance are sufficient and easy to understand. TPCK 6.7 The course design takes full advantage of available tools and media. TPCK 7.4 Course instructions answer basic questions related to research, writing, technology, etc., or link to tutorials or other resources that provide the information. TPCK 8.3 Course pages have links that are self-describing and meaningful. TPCK</p>
<p>TPK : a knowledge of the technology-pedagogy interaction independent of topic-specific representations or content-specific instructional strategies.</p>	<p>1.3 Etiquette expectations (sometimes called “netiquette”) for online discussions, email, and other forms of communication are stated clearly. TPK 1.4 The self-introduction by the instructor is appropriate and available online. TPK 6.2 The tools and media support student engagement and guide the student to become an active learner.TPK 6.5 The course components are compatible with current standards for deliver modes.TPK 8.1 The course incorporates ADA standards and reflect conformance with institutional policy regarding accessibility in online and hybrid courses.TPK 8.2 Course pages and course materials provide equivalent alternatives to auditory and visual content. TPK 8.4 The course ensure screen readability. TPK</p>
<p>TCK a knowledge of the technology-content interaction independent of pedagogy.</p>	<p>6.1 The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course. TCK 6.3 Navigation throughout the online components of the course is logical, consistent, and efficient.TCK 6.4 Students have ready access to the technologies required in the course.TCK 6.6 Instructions on how to access resources at a distance are sufficient and easy to understand. TCK</p>

<p>PCK combines knowledge of activities and knowledge of representations in order to facilitate student learning. The knowledge of pedagogical activities here is content-specific rather than general because PCK is situated in a particular subject area</p>	<p>1.2 A statement introduces the students to the purpose of the course and to its components; in the case of hybrid course, the statement clarifies the relationship between the face-to-face and online components. 2.5 The learning objectives are appropriately designed for the level of the course.PCK 3.1 The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources. PCK 3.4 The assessment instrument selected are sequenced, varied, and appropriate to the content being assessed. PCK 4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning activities.PCK 4.4 All resources and materials used in the course are appropriately cited. PCK 5.1 The learning activities promote the achievement of the stated course and module/unit learning objectives. PCK 7.2 Course instruction articulate or link to an explanation of how the instructor’s academic support system can assist the student in effectively using the resources provided. PCK 7.3 Course instructions articulate or link to an explanation of how the institution’s student support services can help students reach their educational goals, PCK</p>
<p>CK a knowledge of the possible topic- specific representations in a given subject area.</p>	<p>1.6 Minimum student preparation, and, if applicable, prerequisite knowledge in the discipline are clearly stated. CK 4.3 The instructional materials have sufficient breadth, depth, and currency for the student to learn the subject. CK</p>
<p>PK to focus on a teacher’s knowledge of the general pedagogical <i>activities</i> that might utilized</p>	<p>1.1 Instructions make clear how to get started and where to find various course components. PK 1.5 Students are asked to introduce themselves to the class. PK 2.1 The course learning objectives describe outcomes that are measurable. PK 2.2 the module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives. PK 2.3 All learning objectives are stated clearly and written from student’s perspectives. PK 2.4 Instructions to students on how to meet the learning objectives are adequate and stated clearly. PK 3.2 The course grading policy is stated clearly.PK 3.5 “Self-check” or practice assignments are provided, with timely feedback to students. PK 4.2 The relationship between the instructional materials and learning activities is clearly explained to the student.PK 5.2 Learning activities foster instructor-student, content-student, and if appropriate the course, student-student interaction. PK 5.3 Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.) PK 5.4 The requirement for student interaction are clearly articulated. PK 7.1 The course instructions articulate or link to clear description of the technical support offered. PK</p>
<p>TK knowledge of how to use emerging technologies.</p>	<p>1.7 Minimum technical skills expected of the student are clearly stated. TK 6.7 The course design takes full advantage of available tools and media. TK 8.2 Course pages and course materials provide equivalent alternatives to auditory and visual content. TK 8.4 The course ensures screen readability. TK</p>
<p>Course Management</p>	<p>3.3 Specific and descriptive criteria are provided for the evaluation of students’ work and participation. 7.2 Course instructions articulate or link to an explanation of how the institution’s student support services can help students reach their educational goals. 7.3 Course instructions articulate or link to an explanation of how the institution’s academic support system can assist the student in effectively using the resources provided. 8.1 The course incorporates ADA standards and reflect conformance with institutional policy regarding accessibility in online and hybrid courses.</p>