Hu & Torphy (February 2018)
Working Document

This is a working document. We hope that reflecting on online resource acquisition in the ways suggested here will be helpful for teachers and districts. We welcome questions or comments on improvement of this tool. Please contact Sihua Hu (sihua.hu@northwestern.edu) or Kaitlin Torphy (torphyka@msu.edu) with any feedback you may have.

This reflection guide is informed by a portfolio of research on teachers' engagement within social media. This research extends from characterizing particular resources to mapping their diffusion across virtual social networks to examining policy impacts. More details on the Teachers in Social Media project may be found at www.TeachersInSocialMedia.com.

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This work is influenced by the Teaching for Robust Understanding framework and conversation guide. Schoenfeld, A. H., Floden, R. E., & the Algebra Teaching Study and Mathematics Assessment Project. (2014). The TRU Math Scoring Rubric. Berkeley, CA & E. Lansing, MI: Graduate School of Education, University of California, Berkeley & College of Education, Michigan State University. Retrieved from http://ats.berkeley.edu/tools.html

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Sihua Hu & Kaitlin T. Torphy

Reflection Guide for Teachers' Resource Acquisition Online

D1. The Mathematics

Core Question: How do mathematical ideas from this activity/task connect to what I have done in my classroom and what I would do in the near future? How can I create more meaningful connections?

Considering to Acquire	Reflecting on Implementation	Planning Next Steps
How will important mathematical ideas develop in this lesson and unit if I use this activity/task?	How did my students engage with important mathematical ideas in this task/activity?	How can I connect the mathematical ideas surfaced resulting from this activity/task to future lessons?

Questions for reflection:

- What are the mathematical goals and important ideas embedded within the resources? How do these goals and ideas fit into the bigger picture of the lesson?
- How can I use these resources to connect with important mathematical ideas in previous and future lessons?
- If I create multi-day lessons with this resource, how will important mathematical ideas develop in the sequence?
- How can I use my previous knowledge of mathematical ideas to adapt these resources and engage students in a deeper way?
- How do I expect to see or hear students' engagement with important mathematical ideas in this activity/task in class? How will I identify what works and does not work?
- Why did students engage in this way? What could I have done to connect these resources with key mathematical concepts to elicit a better outcome for students?

D2. Cognitive Demand

Core Question: What opportunities does this activity/task allow for students to make sense of mathematics and to engage in good mathematical practices? What are some possible ways that I can adapt the task to create more opportunities?

Considering to Pin	Reflecting on Implementation	Planning Next Steps
What opportunities will students have to make their own sense of important mathematical ideas if I use this activity/task? What kind of supports will students need?	What opportunities did students have to make their own sense of important mathematical ideas? Did I support their struggle in a productive way or not? If so, how?	How could I create more opportunities for students' sense making of important mathematical ideas? How could I support students' struggle in a productive way without scaffolding away the intellectual challenges?

Question for reflection:

- What opportunities exist for students to struggle with mathematical ideas in this activity/task? Do these struggles support their engagement with mathematical ideas?
- How will I respond to students' struggles and engage them in important mathematical ideas without removing struggles?
- What resources are needed to realize the potential of the activity/task? What other resources might be of help for students to use when they encounter struggles? (e.g. other students, the teacher, notes, texts, technology, manipulative, various representations, etc.)
- What particular resources did students use?
- Why students use particular resources and how they might be supported to make better use of resources?

Organization Contextualized Reflections (for in-service and student teachers)

D3. Alignment, Continuity, & Coherence

Core Questions

Alignment	Continuity	Coherence
To what extent does this activity/task align with different elements of my designated curriculum, assessment, and standards?	To what extent does this activity/task contribute to my instruction that is increasingly complex for students?	How do I set up the activity and interact with my students in a way to afford them to develop the mathematical understanding appropriately for their grades?

Question for reflection:

- Does this task/activity fit into the curricular trajectory/standards/assessment in my school?
- How does this task/activity build on my students' prior knowledge in previous grades?
- How does this task build towards students' future learning?
- How do I spiral the mathematical ideas in this activity to advance student understanding rather than repeating what they have learned in previous grades?
- What is the best activity structure for my students to work on this activity? What do I do with struggling students and early finishers?
- What teaching strategies will help me effectively implement this task with students with different needs?

D4. Cultural Relevance[1]

Core Question: How culturally relevant is my instructional resource to my students?

Elements of Culturally Relevant Pedagogies to Consider:

Element 1: Opportunity for all students to experience academic success

Element 2: Opportunity for students to develop or maintain cultural competence[2]

***Element 2a*:** Seeing one's own culture (i.e., curriculum as a "mirror")

[Gutiérrez, 2007]

***Element 2b*:** Seeing another culture (i.e., curriculum as a "window")

[Gutiérrez, 2007]

Element 3: Opportunity for students to develop a critical consciousness

1. ***Opportunity for All Students to Experience Academic Success***

Coding Level	*Definitions*	*Potential Look-Fors*
-1	Negation of any level below	Teacher or task explicitly restricting a particular group from engagement
0	No mention of expectation for students	
1	Acknowledge explicitly that *all* students can achieve academic success	Generic description about all students can do this
2	Respond to different needs of *all* students; Fostering sustainable confidence in *all* students	Specific descriptions on how to facilitate students to achieve the expectations

[1] This dimension has not yet been adapted from a measurement into a professional development tool.

[2] When coding a particular resource, one should select a particular cultural group to "tag" their coding with, in order to properly code along Element 2.

2. Opportunity for Developing or Maintaining Cultural Competence

-2a. Seeing one's own culture in mirror

Coding Level	*Definitions*	*Potential Look-fors*
-1	Negation of any level below	Explicitly racist or praising one culture above other, cultural supremacy
0	Absence of cultural referents	
1	**Presence** of cultural referents for own/other underrepresented cultural groups	More meaningful objects to certain cultural groups: hip-hop, pinatas, etc. But the cultural context is just cover story to the solving of mathematics problem and can be irrelevant.
2	Deep and meaningful **engagement** with cultural referents	Purpose and meaning of certain cultural referent and how they relate to the problem solving.

-2b. Seeing others' cultures through window

Coding Level	*Definitions*	*Potential Look-fors*
0	Absence of cultural referents	
1	Presence of cultural referents for other underrepresented cultural groups	More meaningful objects to certain cultural groups: hip-hop, pinatas, etc. But the cultural context is just cover story to the solving of the problem and can be irrelevant.
2	Deep and meaningful engagement with cultural referents	Purpose and meaning of certain cultural referent and how they relate to the problem solving

3. Opportunity for Developing **develop a critical consciousness**

Coding Level	*Definitions*	*Potential Look-fors*
-1	Negation of any level below	Actively reinforces inequity across cultures and social stratification.
0	Absence of actionable social justice context in the mathematics problem	
1	Opportunities for students to experience the current social order by being exposed to the context	
2	Opportunities for students to challenge the status quo of the current social order by critically reasoning through the mathematics and the context	