

# EXPLORING DISSONANCE AND HARMONY IN ELEMENTARY MATHEMATICS TEACHERS' CURRICULAR USE, AUTONOMY, DECISION-MAKING, AND COHERENCE

Kristin Doherty  
Michigan State University  
kdoherty@msu.edu

Mona Baniahmadi  
Duquesne University  
baniahmadim@duq.edu

Bima Sapkota  
Purdue University  
bsapkota@purdue.edu

Emmanuel K. Adjei  
Purdue University  
eadjei@purdue.edu

Jon Brown  
University of Arizona  
jebrown@email.arizona.edu

Jill A. Newton  
Purdue University  
janewton@purdue.edu

Marcy B. Wood  
University of Arizona  
mbwood@arizona.edu

Amy M. Olson  
Duquesne University  
olsona@duq.edu

Corey Drake  
Michigan University  
cdrake@msu.edu

We surveyed 524 elementary teachers from 46 states about their mathematics curricular decision-making during the COVID-19 pandemic (Giorgio-Doherty et al., 2021). Building on findings from this study, we designed protocols for individual and focus group interviews with teachers from the same school to further explore the complexity of teachers' curricular use revealed in the survey. Here, we report findings from these interviews. The research questions guiding our study were: (1) How do teachers create coherence across their curricular resources? (2) How and why do teachers select or evaluate and adapt curricular materials to teach mathematics? and (3) How do teachers perceive their curricular autonomy? We found most teachers were using multiple curricular materials (some mandated and some not, ranging up to 11 different sources of materials) to plan and teach mathematics. We found teachers frequently focused on content (e.g., connections to key concepts, standards, or lesson objectives) as the key focus of creating coherence between materials for students and for lesson planning. Content coherence also seemed to drive differentiation. Most teachers reported differentiating more than usual to address larger learning gaps across students in their classes due to the pandemic. Teachers stated a preference for curricular materials (like *IXL*) which allowed them to find tasks on particular content and assign students practice problems related to that content at grade level and above/below. Teachers varied in how they responded to different solution strategies presented by different materials. Some teachers provided coherence by directing students to rewrite directions so they use the same solution strategy as in prior lessons from other materials; other teachers felt students experienced better connections to content as they made sense of different solution strategies from different materials. Several teachers used *TeachersPayTeachers* (TPT), with some reporting materials on TPT engage students better than materials from their primary curriculum, do not need modifications, or better meet their instructional preferences. We found teachers who reported high levels of enjoyment and confidence in teaching mathematics made the most adaptations to curricular materials and most often designed their own. Many teachers reported adapting curriculum to be more engaging to students. This included adding visuals or enlarging text size and creating opportunities for problem-based and hands-on learning. Some reported adapting or creating materials to make connections to the world or be more culturally relevant. Overall, teachers reported high levels of curricular autonomy for all curricular materials, including mandated materials (median score of 7 out of 10) and non-mandated or suggested materials (all scoring 10 out of 10).

### References

- Giorgio-Doherty, K., Baniahmadi, M., Newton, J., Olson, A. M., Ferguson, K., Sammons, K., Wood, M. B., & Drake, C. (2021). COVID and curriculum: Elementary teachers report on the challenges of teaching and learning mathematics remotely. *Journal of Multicultural Affairs*, 6(2).  
<https://scholarworks.sfasu.edu/jma/vol6/iss2/3>