

MLER Middle Level Education Research Special Interest Group

The Chronicle of Middle Level Education Research

MLER

MIDDLE LEVEL EDUCATION RESEARCH
SPECIAL INTEREST GROUP

Message from the Chair

Points of Interest:

- Message from the Chair
- Graduate Student Award Winner
- MLER-SIG Business Meeting Minutes

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As summer approaches, I hope that everyone had a successful academic year and can now look forward to a few months of rest and rejuvenation.

In April, we met in San Francisco for the annual meeting. We had a great turnout for the SIG Business Meeting which was followed by an informal social gathering in the hotel restaurant. It was wonderful to see so many colleagues at the meeting as well as the presence of many new faces. I was particularly pleased that we had several graduate students in attendance. I want to thank those SIG members that actively encourage their students to attend and present at AERA; these students are our future colleagues and the future of the SIG as an organization.

Special thanks goes out to Chris Cook who put together a comprehensive and exciting program of middle level topics for the annual

AERA SIG program. This year the SIG had two paper sessions, three roundtable sessions, and a symposium. All of our SIG sessions were well attended and informative.

I want to take this opportunity to extend appreciation to our outgoing Council members, Lisa Harrison and Robert Capraro. Lisa and Robert concluded their two-year council terms at the recent meeting and we are thankful for their service to the SIG. Nicole Thompson was appointed to serve an additional year as a council member to fill a vacancy on the council; her term will conclude next year at AERA. I also want to congratulate Mexium Zheng, this year's graduate student award winner. Mexium presented the results of her dissertation work at the business meeting.



Steve Mertens

Illinois State University

During the SIG Business Meeting, Shawn Faulkner, chair of the Recognition and Awards Committee introduced the newest SIG award, the *Outstanding Middle Level Education Research Award*. This award will recognize SIG members who have made significant contributions to middle level education research through the publication of an article, book chapter, monograph, book, or book series.
(Continued on page 10)

RMLE Online Call for Manuscripts

The editor of *Research in Middle Level Education Online* is seeking manuscripts concerning quantitative and qualitative research studies, case studies, action research studies, as well as research syntheses.

RMLE Online is an international, peer-reviewed research journal published by the National Middle School Association.

Guidelines for contributors, a listing of the Editorial Review Board, and past issues

of RMLE Online are available at www.nmsa.org

If you have questions, please contact Karen Swanson, Editor, at SWANSON_KW@mercuer.edu.



The Chronicle of Middle Level Education

Research, the online publication of the Middle Level Education Research SIG, is seeking submissions. The MLER SIG publishes the Chronicle three times a year in spring, summer, and fall. We invite you to submit book reviews, brief articles of scholarly work, (including original research and reviews of literature), descriptions of research, or other events/information of interest to MLER SIG members. If you wish to submit items of interest, contact Pam Angelle at pangelle@utk.edu

MLER SIG Officers

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SIG Association Council Members

Kathleen Brineger (2012-2014)
Johnson State College

Cheryl EllerBrock (2013-2015)
University of South Florida

Nancy Flowers (2013-2015)
University of Illinois

Bridget Mahoney (2012-2014)
University of South Florida

Nicole Miller (2013-2015)
Mississippi State

Frances Spielhagen (2012-2014)
Mount Saint Mary College

Nicole Thompson (2011-2014)
Mississippi State University

Send In Your News!

Please send any items, announcements, or information you would like to have considered for publication in *The Chronicle of Middle Level Education Research* to:

Pam Angelle, Ph.D.

pangelle@utk.edu

David Lomascolo

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The Newsletter is published three times annually—Spring, Summer, & Fall.

We're on the Web!
www.rmle.pdx.edu



The purpose of the MLER SIG is to improve, promote, and disseminate educational research reflecting early adolescence and middle level education.

Membership in the MLER-SIG connects AERA members who are committed to research issues related to young adolescents. SIG members exchange information and ideas through Annual Meeting presentations, newsletters, and informal gatherings.

Membership cost is \$10/year. The MLER-SIG (#88) is listed on the third page of the AERA Membership Application Form.

MLER SIG Graduate Student Mentoring Initiative

MLER's Graduate Student Mentoring Initiative (GSMI) is 13 mentee/mentor pairs strong and growing! GSMI extends congratulations to mentees Sarah van Ingen and Kathleen Alley for graduating in 2013! GSMI also welcomes our new mentee/mentor pairings:

Danika Maddocks and Dr. Sarah Kiefer
Ruchelle Owens and Dr. Nicole Miller
Manya Chappell and Dr. Fran Falk-Ross

Who are GSMI mentors?

Mentors are experienced SIG members willing to share their time and expertise with graduate students interested in middle level research.

Who are GSMI Mentees?

Mentees are graduate students interested in middle level education and becoming more involved with the MLER SIG. Current mentees attend a wide variety of programs at higher education institutions across the country.

What does a SIG mentorship look like?

GSMI mentorships are intended to meet the needs of both the mentee and mentor. Mentees and mentors are encouraged to meet in person at the annual meetings of the American Educational Research Association and the Association of Middle Level Education. Throughout the year, pairs are

encouraged to communicate using email, Skype, etc. Mentorship activities may include guidance in research projects and with the publication process. Mentors often provide career advice and alert mentees to opportunities both within the SIG and in the larger research community.

I'm a SIG member who would like to become a mentor

Sign up here: <http://learnbydesign.net/MLER/index.php?sid=87275>

I'm a graduate student and SIG member who would like to become a mentee

Sign up here: <http://learnbydesign.net/MLER/index.php?sid=92585>

For more information, please contact:

Bridget Mahoney
MLER SIG Graduate
Student Representative
Mentoring Initiative
Co-Lead
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Cheryl Ellerbrock,
Ph.D.
MLER SIG Member
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MLER SIG Business Meeting
April 27, 2013, 6:15-7:45 pm
AERA Meeting San Francisco, CA

Attendance—59

MINUTES

Welcome & Introductions (Steve Mertens)

Steve opened the meeting by welcoming everyone. Each person introduced themselves.

Executive Advisor's Report (David Strahan)

Dave Strahan discussed the results of the SIG Member Survey sent out on 2/7/2013 from the AERA SIG distribution list with 257 names. Based on the results of the survey, Dave is recruiting people to be a part of an Ad Hoc Committee to review the SIG's Strategic Plan. Anyone interested in working on this committee please contact Dave Strahan. Steve encouraged everyone to participate if they are interested.

Steve acknowledged the issues raised about inclusiveness and indicated that many initiatives in the SIG are designed to be more inclusive for the members.

Financial Report (Kenneth Anderson—a.k.a. Chief Financial Officer)

Kenneth presented the financial report.

Beginning Balance: \$6,058.83

Revenue: \$2,020.00

Expenses: \$2,589.73

Ending Balance: \$5,489.10

Revenue from donations and membership dues.

Expenditures: \$750 CPT, \$250 SIG management fee, \$127, Membership ribbons

Kenneth also discussed the new award structure in the SIG regarding outgoing SIG Officers and Council members.

Letters for P & T will be given to all outgoing officers or Council members instead of plaques.

Kenneth presented the new Expense Authorization Form as a way to establish a system of checks and balances within the financial system of the SIG.

Program Chair Report (Chris Cook)

Chris Cook provided a summary the program for the 2013 annual meeting of AERA in San Francisco, CA. 52% acceptance rate

SUBMISSION SUMMARY

41 proposal submissions

1 symposia submission

22 papers accepted

52% acceptance rate

PROGRAM SUMMARY

2 Paper Sessions

3 Roundtable Sessions

1 Symposia

1 Business Meeting

A special thanks to the Proposal Reviewers! Reviewers will receive a letter of thanks at the end of the meeting.

25 SIG members volunteered to review proposals
 18 accepted the formal invite (see below)

Each proposal submission received a minimum of 3 reviews. Most received a 4th review by a graduate student reviewer (Grad student scores do not factor into the final score but the feedback does go back to the authors).

Pam Angelle
 Kathleen Brinegar
 Micki Caskey
 Jennifer Denmon (grad)
 Francine Falk-Ross
 Lisa Harrison
 Kim Hartman



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Hillary Hughes-Decatur
 Bridget Mahoney (grad)
 Martin
 Nicole Miller
 Ruchelle Owens (grad)
 Cynthia Reyes
 Mary Roe
 Linda Samek
 Frances Spielhagen
 Nicole Thompson
 Keith Tilford

Chris encouraged all members to consider volunteering to be a reviewer for the 2014 Conference – Philadelphia, PA. This work provides a valuable service that is critical to the success of our program.

Deadline to sign-up is May 10, 2013
 Log in to AERA site – click “My AERA” and then click on the 2014 “Online Program Portal”

SIG Committee Reports

(a) Leadership Development

Results of Election;

3 new Council Members were elected. Steve acknowledged those individuals.

Cheryl Ellerbrock
 Nancy Flowers
 Nicole Miller

Continuation of current SIG member, Nicole Thompson, as a Council Member for one more year.

Graduate Student Mentoring Initiative--Bridget Mahoney and Cheryl Ellerbrock reported:

25 graduate student members in the SIG
 10 continuing mentor/ mentee pairs
 3 pairs were dissolved because the mentees have graduated
 3 new pairs in process (1 new pair there)

(b) Awards & Recognition (Chair: Shawn Faulkner)

Announcement of new SIG Outstanding Research Award

Shawn recognized the Honors and Awards Committee members as working on the proposal of the new SIG *Outstanding Research Award*.

H & A Committee made the following recommendations to the membership of the SIG:

Monetary award will be changed from \$250 to a sponsored award by IAP(\$100 cash or \$250 worth of books from IAP.

Name change from Outstanding Middle Grades Research Award to Outstanding Middle Level Research Award to stay with the name of the SIG.

Deadline for award nominations is January 1st (this will make it consistent with the other awards).

No self-nominations.

Work must be published in the last five years.

Nomination form will be prepared and placed on the website by Micki Caskey.

Shawn also proposed recommendations to change the Dick Lipka Award. One issue raised by the committee is the vast differences between Masters application and Doctoral applications. The differences between the two make it very difficult to assess given the award criteria. The committee has recommended that the award become a dissertation award. This would make the process easier as all nominations would be on the same level and judged by the same criteria. The committee made this recommendation to the Executive Council approved of the change.

Micki Caskey raised concerns about this change as it would compromise the original intent of the award created by Dick Lipka. Vince Anfara added that this was an issue that was voted on by the membership and did not think it could be changed by a recommendation. Dave Strahn suggested additional discussion of the change and a vote at the AMLE



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MINUTES *(Continued from page 5)*

SIG business meeting in November. Micki called for a vote on the change via email to the membership.

The question was asked how many graduate students were Masters students. This number is not clear as students are only listed as “graduate” students.

The suggestion was also made that the criteria be very clear—regardless of the level.

Recognition of the outgoing Council Members:

Lisa Harrison and Robert Capraro were recognized as outgoing Council Members.

Official letters of recognition for outgoing officers & council members:

These letters will be in the place of plaques and will be intended to be evidence of service to the organization for promotion and tenure materials.

2013 Graduate Student Award Winner – Mexium Zheng

Mexium presented a brief overview of her research.

Membership & Outreach (Chairs: Lisa Harrison & Kathleen Brinegar)

Kathleen Brinegar shared the membership numbers (147 as of 4/19/2013) & encouraged others to Like the Facebook page. It was also suggested to extend the mentoring program for graduate students to include early career faculty.

Publications

Penny Bishop, chair of the Research Advisory Committee for AMLE reported that AMLE has decided to merge *MSJ* and *RMLEO*.

Chronicle (Pam Angelle) – David Lomascolo brought greetings from Pam Angelle. He also introduced the

suggestion to add SIG members’ publications and presentations to the Chronicle newsletter as a way to log the various research interests of the SIG members. All members should submit their publications and presentations to Pam (pangelle@utk.edu) to be included in the Chronicle.

Handbook series-Kathy Malu

Middle Grades Research Journal (Fran Spielhagen, Robert & Mary Margaret Capraro):

35% acceptance rate at this time. 3 issues a year. Open call for *MGRJ* will come out for the Fall issue.

6) Updates & Announcements

Updates from Partner Organizations--SIG Exec Comm, AMLE, NaPOMLE(Melanie Greene encouraged members to get involved with NaPOMLE)

Status of SIG bylaws- Steve announced that they are approved by AERA, will come out for a vote to the membership in a few months. Posted on the SIG website.

Revisions to SIG web site. Micki Caskey presented the revisions to the SIG website.

Final update on CPT Project—Steve announced that all of the data have now been uploaded to the Blackboard site at the University of Tennessee. All participants should be able to access that data. Contact Micki, Steve, or Vince if there are issues. Data should be available to all members next year.

Guest reviewers are needed for Equity and Excellence in Education—the focus is Charter Schools.

Teacher Education Symposium will be held Wednesday, November 6th in MN. More information to come!

Meeting adjourned and members were invited to attend the informal social gathering in the hotel lobby.



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AERA Meeting San Francisco, CA

Attendance—59

MINUTES *(Continued from page 6)*

MLER SIG FY 2012 Financial Report

Beginning Balance:	\$6,058.83											
Revenue:	\$2,020.00											
Expenses:	\$2,589.73											
Ending Balance:	\$5,489.10											
(see Itemized tab for detailed info)	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Membership Dues	\$300.00	\$200.00	\$50.00	\$25.00	\$25.00	\$75.00	\$80.00	\$10.00	\$165.00	\$95.00	\$190.00	\$405.00
Donations										\$400.00		
CPT Project, Phase II												
Licenses/Fees												
Copier/Duplication												
Awards				\$1,442.23						\$127.50		
Office Supplies												
Postage/Mailing				\$45.00								
Nat'l Forum Dues												
Pubs/Printing												
Receptions/Events												
Misc						\$750.00		\$225.00				
REVENUE	\$300.00	\$200.00	\$50.00	\$25.00	\$25.00	\$75.00	\$80.00	\$10.00	\$165.00	\$495.00	\$190.00	\$405.00
EXPENSES	\$0.00	\$0.00	\$0.00	\$1,487.23	\$0.00	\$750.00	\$0.00	\$225.00	\$0.00	\$127.50	\$0.00	\$0.00
BALANCE - Month	\$6,358.83	\$6,558.83	\$6,608.83	\$5,146.60	\$5,171.60	\$4,496.60	\$4,576.60	\$4,361.60	\$4,526.60	\$4,894.10	\$5,084.10	\$5,489.10

*Prepared by Shawn Faulkner, SIG Treasurer, July 1, 2012
 Prepared by Kenneth Alonzo Anderson, SIG Treasurer, Aug 1, 2012*

MLER SIG FY 2012 Itemized Expenditure Report		
Month	Purpose	Amount
December 2011	(UIL- CPTII reimbursement (CPRD)	\$750.00
April	All Star Awards	\$642.23
	Honorarium – V. Anfara, Jr.	\$500.00
	Honorarium – H. Hughes-Decatur	\$250.00
	Reimbursement – P. Bishop (gift cards)	\$50.00
	Reimbursement – M. Mee (postage)	\$45.00
August	SIG Management Fee 7/12-6/13	\$225.00
October	Reimbursement – S. Mertens (ribbons)	\$127.50
	Total Expenses	\$2,589.73



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Attendance—59

MINUTES *(Continued from page 7)*

MLER SIG FY 2013 Financial Report

Beginning Balance:\$5,489.10												
Revenue:\$500.00												
Expenses:\$250.00												
Ending Balance:\$5,739.10												
(see Itemized tab for detailed info)	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Membership Dues	\$295.00	\$110.00	\$95.00	-	-	-	-	-	-	-	-	-
Donations												
CPT Project, Phase II												
Licenses/Fees												
Copier/Duplication												
Awards				\$250.00								
Office Supplies												
Postage/Mailing												
Nat'l Forum Dues												
Pubs/Printing												
Receptions/Events												
Misc												
REVENUE	\$295.00	\$110.00	\$95.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EXPENSES	\$0.00	\$0.00	\$0.00	\$250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BALANCE - Month	\$5,784.10	\$5,894.10	\$5,989.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10	\$5,739.10
Prepared by Kenneth Alonzo Anderson, SIG Financial Officer												

MLER SIG FY 2013 Itemized Expenditure Report		
Month	Purpose	Amount
April	Honorarium – M. Zheng	\$250.00
	Total Expenses	\$250.00



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Outgoing council members, Lisa Harrison and Robert Capraro with current Chair, Steve Mertens



Council members, Bridget Mahoney and Cheryl Ellerbrock discuss Graduate Student Mentoring Initiative



Shawn Faulkner, Vice Chair



Steve Mertens, Chair



Graduate Student Award Winner, Meixun Zheng, with Vice Chair, Shawn Faulkner and Chair, Steve Mertens

Message from the Chair *(Continued from page 1)*

Details about this award will soon be available on the SIG's web site.

The SIG conducted an [election last spring and I would](#) like to introduce the three newly elected council members: Cheryl Ellerbrock (University of South Florida), Nancy Flowers (University of Illinois), and Nicole Miller (Mississippi State University). I look forward to working with our new council members.

If you have not recently visited the SIG website (<http://www.rmle.pdx.edu>), please take the opportunity to do so. Micki Caskey, SIG webmaster, has been working on many revisions and updates to the website.

Starting with the next issue of *The Chronicle* we will introduce a new feature—*SIG Member Publications & Presentations*. SIG members will have the opportunity to submit an annotated bibliography of recent research publications and/or presentations. This will help the SIG to document the important and influential work of our members, as well as to help us build a

database of research that can be added to the website for greater accessibility and wider dissemination. Additional information about this new feature of *The Chronicle* will be emailed to members over the summer.

I would also like to make you aware of some upcoming professional opportunities. The deadline for submitting proposals for AERA 2014 will be coming up in late July. I strongly encourage you to consider submitting a proposal for next year's MLER SIG program. Next year's meeting will be in historic Philadelphia. The annual AMLE conference will be coming up in early November; don't forget to register and book your hotel room early. We will conduct our semi-annual SIG business meeting during the conference. Lastly, AMLE's Professional Preparation Advisory Committee is sponsoring *The Symposium on Excellence in Middle Level Teacher Preparation*, scheduled for Wednesday, November 6, the day

before the annual AMLE conference in November 2014. The committee is currently soliciting proposals for the symposium; the submission deadline is July 1. Contact Penny Howell, SIG Secretary (penny.howell@louisville.edu) for additional information.

In closing, I would just like to say that I am honored to be serving as the Chair of the SIG and will continue to work together with the officers, council members, and members to advance and promote the important work of the SIG. As you will see from reading this issue of *The Chronicle*, the SIG has been very active in promoting our work/mission to serve as **the voice** in middle level education research. I look forward to new and exciting opportunities for our SIG.

I hope you have a great summer and I look forward to seeing everyone at the upcoming AMLE conference in Minneapolis in November!

A Report on the Membership Survey

David Strahan, Executive Advisor

The Executive Committee of the MLER SIG developed and distributed a survey in February 2013 to gain a better understanding of how the SIG is viewed by its members, elicit members' opinions about various SIG activities, and determine options for enhancing involvement in the SIG. The Committee emailed the survey to a total of 257 people and received responses from 68 (26%).

At our meeting in San Francisco, members reviewed the results of the survey and agreed to initiate a new strategic planning process. Five members have volunteered to help draft a new plan. If you are interested in joining us to work on the strategic plan, please send me an email: strahan@email.wcu.edu. In early August, I will schedule a conference call to begin the process.

A Report on the Membership Survey

David Strahan, Executive Advisor *(Continued from page 10)*

(Continued on page 11)

In April, Steve Mertens emailed the results of the survey to everyone on our distribution list. The rest of this report provides a summary of key results.

Results showed that two-thirds of respondents have been members for at least 4 years (66%). Most members (75%) are familiar with the services offered by our SIG. In regard to specific services, more than 80% are aware of the newsletter, the handbook series, the business meetings, and opportunities to network with other researchers. Fewer were aware of website links, information lists, and announcements (55-67%).

Respondents were very positive about the MLER SIG in general. 88% reported that the SIG met their needs. More than 85% agreed or strongly agreed that the SIG offered opportunities for participation, collaboration, and leadership. More than 85% agreed that the SIG works effectively, works well with other organizations, contributes to career goals, and invites diversity. Perceptions of the extent to which the SIG “makes a point of making all members feel welcome” were less positive (72% agreement). Most respondents judged our website easy to use (89%),

yet few indicated they used the website weekly or monthly (19%).

Most members reported that they attended the AERA conference (82%); 67% reported attending our business meeting at AERA; 55% attended at AMLE. While 55% reported that they volunteered to review AERA proposals, only 26% had volunteered to serve as session chair or discussant. 37% had contributed chapters to the handbooks.

When asked about interests in participating in a new SIG-sponsored research project, 85% said yes. The most frequently suggested topics for a new study clustered around middle level teacher education (19%), middle level administration/leadership (6%), early adolescent development (6%), and curriculum (6%). The remaining suggestions (63%) varied widely.

Very few respondents offered specific suggestions for improving the work of the SIG. Responses received from at least 2 people included these suggestions: offering more opportunities for collaboration (4 people), being more welcoming and inclusive (4), addressing a broader range of research topics (3), and being more active outside the meetings (2).

MLER SIG Awards Recognition

The Middle Level Education Research SIG is pleased to offer three awards to recognize the work of middle level education researchers. The SIG now has three AERA-sanctioned awards.

SIG members are encouraged to nominate deserving individuals for each of the SIG awards. The nomination deadline for all awards is January 1, and nomination forms and criteria are available on the SIG website (<http://www.rmle.pdx.edu/index.html>).

Finally, for any recognition program to be successful, it requires the services of volunteers to review the nominations. The SIG wishes to thank the members of the Awards and Recognition Committee for their service this year. The committee members were Shawn Faulkner (Chair), Penny Bishop, Laurie Ramirez, Lisa Harrison, Francine Falk-Ross, Heather Haverback, and Ruchelle Owens.

See page 15 for information on the 2013 Graduate Student Award.



Publishing Opportunities for Middle Grades Research

The following outlets specialize in publishing middle grades research and are sponsored by AERA's Middle Level Education Research SIG, Association for Middle Level Education, and the like. While not comprehensive, the list may be useful to middle grades researchers, particularly to those new to the field.

◆ *Chronicle of Middle Level Education Research*

The Chronicle of Middle Level Education Research is the online publication of AERA's Middle Level Education Research SIG. The Chronicle is published three times a year in January, June, and October and includes book reviews, descriptions of research or publications, and other information of interest to MLER SIG members. This electronic publication also features a peer-reviewed section and seeks brief articles of scholarly work including original research and reviews of literature. For additional information, please contact Dr. Pam Angelle, Editor, Chronicle of Middle Level Education Research, at pangelle@utk.edu

◆ *The Handbook of Research in Middle Level Education*

Since 2000 the MLER SIG has sponsored a research handbook that is co-published by Information Age Publishing and the National Middle School Association. As of 2012, nine volumes have been published with each volume focusing on a specific topic like curriculum, instruction, and assessment; the professional preparation of middle grades teachers and administrators; middle school reform; action research; and an international look at education young adolescents. Vincent A. Anfara, Jr. serves as the Series Editor for this publication and calls for manuscripts can be found at the MLER website, <http://www.middlelevel.pdx.edu>

◆ *Research in Middle Level Education Online*

Research in Middle Level Education Online (RMLE Online) is an international peer-reviewed research journal published by the National Middle School Association. The Journal publishes quantitative and qualitative studies, case studies, action research studies, research syntheses, integrative reviews, and interpretations of research literature. NMSA's Research Advisory Board provides editorial guidance and MLER SIG endorses the publication. Dr. Karen Swanson, Editor, can be reached at SWANSON_KW@mercer.edu. See guidelines for contributors: <http://www.amle.org/Publications/RMLEOnline/tabid/426/Default.aspx>

◆ *Middle Grades Research Journal*

Middle Grades Research Journal (MGRJ) is a refereed, peer-reviewed journal published by the Missouri State University Institute for School Improvement. The journal publishes original studies providing both empirical and theoretical frameworks that focus on middle grades education. A variety of articles are published quarterly in March, June, September, and December of each volume year. For more information about the Journal and its submission guidelines, please visit <http://www.infoagepub.com/middle-grades-research-journal.html>. Inquiries may be directed to Dr. Frances R. Spielhagen, Editor, at mgrj@infoagepub.com.

◆ *Association for Middle Level Education (AMLE) Research Summaries*

AMLE Research Summaries are abbreviated reviews of the literature in support of tenets of *This We Believe* (2010). These research summaries are designed to inform middle school practice, research, and policy as well as to provide basic information about the education of young adolescents for parents and community members. See the submission guidelines: <http://www.amle.org/Research/ResearchSummaries/tabid/115/Default.aspx>

2013 Graduate Student Award Recipient

The **Graduate Student Award** has been presented annually since 2003 to recognize outstanding middle level education research by a recent graduate of a masters, specialist, or doctoral program. At the 2013 AERA SIG business meeting, the SIG presented this award to Meixun Zheng from North Carolina State University for her dissertation titled *Fifth Graders' Flow Experience in a Digital Game-Based Science Learning Environment*. Please see page 16 for the abstract.

Information about the award can be found at <http://www.rmle.pdx.edu/>



Originally from China, Zheng received her B.A. in English Language Arts Education and her M.A. in Educational Administration, both from East China Normal University in Shanghai, China. Well armed with English studies and a background in education, she decided to pursue her doctoral program in the Department of Curriculum and Instruction at North Carolina State, graduating in May 2012. Zheng says that she chose NC State because of the "... outstanding graduate programs offered here and the diversity on campus."

Zheng says that she's always been interested in education as a career choice. But at NC State, she combined her love of education with technology -- or as she says, "... research at the intersection of literacy and technology." Consequently, her doctoral research projects were interdisciplinary, involving "... areas of online reading comprehension, videos, games, and how internet and communication technology have changed teacher education and student learning in the 21st century."

Her dissertation specifically studied game-based learning for K-12 students. In the dissertation, she examined 5th graders' enjoyable and playful game-based science learning experience through the lens of flow theory. It was this research that she presented at the 2012 NC State Graduate Student Research Symposium. She hopes that her research will contribute to K-12 teaching and learning innovation both in the U.S. and globally. Zheng wants to help "... create a learning environment that is both engaging and effective for students."

The Research Symposium provided Zheng with "... a unique opportunity

for me to learn from my fellow students. . . ." She said that it was not only an honor for her to present her research, but she was also "... impressed by the diverse and outstanding research projects being conducted. . ." by her fellow graduate students.

Zheng appreciates all the diverse research and teaching experiences that came her way while at NC State. She is particularly grateful for her involvement in various grant-funded research projects, as well as her chance to work with an interdisciplinary team of researchers. Most of all, however, she values the "... opportunity to work closely with K-12 teachers and students."

Zheng is currently Adjunct Assistant Research Professor at the University of the Pacific in San Francisco, California.

(Information retrieved from North Carolina State University Graduate School Webpage)

Fifth Graders' Flow Experience in a Digital Game-Based Science Learning Environment Background and Research Purposes

Meixun Zheng

The popularity of game-based learning has promoted increasing interest among researchers in students' emotion/experience during gameplay. Studies in this area are very important because students' experience of playfulness/enjoyment during gameplay has been found to motivate them to continuously engage in learning. Recently, researchers have begun to examine students' gameplay experience using Csikszentmihaly's (1991) flow theory. "Flow" is a state of consciousness experienced by individuals deeply involved in an enjoyable activity, also referred to as the "optimal experience" (Csikszentmihaly, 1991). Game flow experience studies focus on the context of gameplay and examine how game design features impact student flow experience. This type of research is especially valuable considering that educational game design/evaluation is still in its infancy. A full body of literature has yet to be developed in terms of how to devise effective games for students (Authors, 2011). Using a mixed methods design (Creswell & Clark, 2006), this study examined 5th graders' positive emotion (flow experience) in the CRYSTAL ISLAND game-based learning environment using two gameplay approaches (solo and face-to-face collaborative gameplay). Specifically, this study examined students' game flow experience based on a 3-stage game flow model/scale by Kiili and Lanamia (2008), including: (1) flow antecedents, including 6 game design features of balance between challenge and perceived challenge, immediate and clear feedback, clear goals, playability, gamefulness, and clear game background/frame story; (2) game flow experience, including 5 theorized subscales of complete concentration, sense of time distortion, loss of self-consciousness, sense of potential control, and autotelic experience (a state of mind when players play the game for the pure enjoyment/fun or gameplay instead of playing for external reasons); and (3) flow consequences, including content area learning gains. Based on this framework, this study was guided by three questions: (1) To what extent did 5th graders in a suburban

elementary school in southern U.S experience game flow while playing the CRYSTAL ISLAND game, as reflected in the flow scale and focus group interviews? o What were the differences in students' flow experience based on two different gameplay approaches (solo and face-to-face collaborative gameplay)? o What were the differences in students' flow experience based on individual differences (i.e., gender, reading proficiency, and prior gaming experience)? (2) What and how did different factors (game design features and peer interaction during gameplay) impact students' game flow experience? (3) What was the relationship between students' game flow experience and their science content learning gains?

Methodology

Participants and Research Context

73 5th graders completed all three measures (see below for details) and were included in data analysis (males=38, females=35). Students were randomly assigned into two gameplay conditions (solo players=37, collaborative players=36). Students played a 3-D computer game called CRYSTAL ISLAND, which just finished its third year of development as an NSF-funded project. The curriculum of the game, designed by the CRYSTAL ISLAND research team, focuses on the landform module (including map navigation and model) in 5th grade science.

Quantitative and Qualitative Measures

Pre measures. The pre measures consisted of 3 categories: (a) science content knowledge test, which consisted of 27 multiple choice questions assessing both low-level and higher-level application/transfer knowledge; (b) students' prior gaming experience, which was measured with a question in which students entered the number of hours they spend in playing video games each week; and (c) students' reading

proficiency (Reading End Of Grade scores on a 4-point scale provided by their teachers).

Post measures

The post measures consisted of: (a) science content knowledge (identical as pre test), and (b) game flow experience and flow antecedents. Students' game flow experience was measured by using an adapted game flow survey and semi-structured focusgroup interviews.

Adapted game flow scale. The original questionnaire by Kiili and Lanamia (2008) consists of two parts: (a) eighteen 5-point Likert-scale items (1=strongly disagree to 5=strongly agree) measuring six flow antecedents (game design features), and (b) fifteen items measuring 5 theorized dimensions of game flow experience (see previous discussion). Some items were reworded to fit the target participants of this study (elementary students). Three new items were created and added to the survey, asking students in the collaborative gameplay condition about their peer interaction experience during gameplay. To validate the construct of flow experience with 5th grades, exploratory factor analysis (EFA) was conducted. The EFA extracted 4 factors, accounting for 56.80% of the total variance. Specifically, items measuring the two flow experience subscales of time distortion and loss of self-consciousness loaded on the same factor. One possible reason is that students in this current study are too young to fully understand the differences between these two concepts. Therefore, it makes sense to combine the subscales of time distortion and loss of self-consciousness into a new 4th subscale of game flow experience for the purpose of this current study.

Semi-structured focus group interviews. Five students from each gameplay condition were selected for the interview based on their teachers' recommendations (to ensure talkative participants). Students were asked about their gameplay experience guided by the flow experience subscales as well as their perception of CRYSTAL ISLAND game design. Focus group

interview data were coded using *a priori* coding guided by flow theory during the 1st round, and open coding during the 2nd round to identify any additional elements mentioned by students.

Data Collection

Students participated in the study across four sessions: pre-test one-week prior to gameplay, and three gameplay sessions. On the first day of gameplay, participants were randomly assigned to either the single playing or face-to-face collaborative playing condition. Students then viewed a 3-minute background story video about CRYSTAL ISLAND, followed by a tutorial familiarizing them with game controls. Students then played the game for 40 minutes. After gameplay, 5 solo game players were selected to participate in a 30-minute focus group interview. On the 2nd day, students played the game for 50 minutes, after which the adapted game flow experience scale was administered and 5 collaborative game players were selected to participate in a 30-minute focus group interview. Focus group participants were selected based on their teachers' recommendation in order to ensure more talkative participants. On the third day, the time for gameplay was shortened to 40 minutes to allow students time to take the post measures.

Key Findings

For the 1st research question, descriptive statistical data showed that, for the solo gameplay condition, the mean scores for the 4 flow experience subscales ranged from 4.03 to 4.58 on a 5-point scale; for the collaborative gameplay condition, the mean scores ranged from 3.99 to 4.63. In addition, the mean score for the flow experience subscales ranged from 4.01 to 4.60 for all students across the 2 gameplay conditions. These data indicated that, regardless of gameplay condition, students had high game flow experience. Qualitatively, all 10 students interviewed used words such as "enjoyed", "comfortable", and "fun" to describe their gameplay experience. Specifically, results from *a priori* coding guided by the flow experience subscales supported the statistical findings that students had high flow experience. Preliminary ANOVA analysis failed

to revealed a significant impact of gender on students' game flow experience. The simple regression analyses also failed to reveal a significant impact of prior gaming experience on students' game flow experience. However, students' reading proficiency was found to significantly predicted students' autotelic experience during gameplay, $R^2 = .07$, $\beta = .13$, $t = 2.35$, $p = .02$. Reading proficiency also had a marginally significant impact on students' attention focus ($R^2 = .05$, $\beta = .13$, $t = 1.86$, $p = .066$) and sense of time distortion/loss of self-consciousness ($R^2 = .05$, $\beta = .12$, $t = 1.83$, $p = .07$). Finally, the MANCOVA (controlling for the impact of reading proficiency) failed to reveal a main effect for gameplay condition, meaning that students' game flow experience didn't differ significantly based on gameplay conditions.

For the 2nd research question, descriptive data from the adapted flow experience survey demonstrated that the mean scores for the 6 game design features (flow antecedents) ranged from 3.82 to 4.15 on a 5-point scale, indicating that students thought that the game was designed with desirable features. Students' oral statements supported the quantitative findings in general, with slight differences revealed. For example, even though results from the flow survey indicated that students thought the game has a clear goal, only 3 students interviewed correctly articulated the goal of the game. For students in the collaborative gameplay condition, their perception of peer collaboration during gameplay had an average score of 4.21, indicating a sense of enjoyable peer collaboration during gameplay. However, 2 students in the focus group commented that they would like to play with a different partner, and 1 student said her partner was "annoying". Meanwhile, multiple regression analyses with the game design features as predictors and the 4 flow experience subscales as outcome variables revealed that 4 of the 6 game design features positively predicted students' flow experience, including balance of challenge and perceived skills, immediate and clear feedback, gamefulness, and clear game background story. In addition, results revealed that the impact of peer interaction on one of the 4 flow experience subscales (students' sense of time distortion and loss of self-

consciousness) was approaching significance, $\beta = .41$, $t = 1.90$, $p = .07$. Finally, for the 3rd research questions, Repeated Measures ANOVA analysis revealed that students made significant science content learning gains as a result of gameplay, $F(1,71) = 5.26$, $p = .03$, partial eta squared = .07; however, findings from multiple regression analyses with the 4 flow experience subscales as predictors and students' science learning gains (residual gains) as outcome variables revealed that flow experience was not a positive predictor of student science learning gains.

Conclusion and Significance

The study demonstrated that the CRYSTAL ISLAND game was effective in supporting students' learning both cognitively and emotionally. In particular, this study demonstrated that flow theory provided a new lens to examine upper elementary students' game-based learning experience and that the adapted game flow experience survey provided a satisfactory measure of students' flow experience during gameplay. Results have implications for educational game design as this study revealed important game design and student personal factors that positively impacted students' playful and enjoyable game-based learning experience. In addition, the focus group interviews disclosed important supplementary information regarding students' game flow experience, suggesting that future studies employing a mixed method design will more aptly capture the phenomenon.

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Teachers Beliefs on the Use of Questioning to Facilitate Mathematical Discourse

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Discourse is an invaluable tool in strengthening adolescents' understanding and reasoning of mathematics (National Council of Teachers of Mathematics, 2000). Mathematical discourse, the interactive exchange of ideas between teachers and students aimed at increasing mathematical understanding, within a whole-class setting will be referred to as whole-class discourse (WCD). The use of questions to facilitate WCD is fundamental to deepening students' understanding as well as making student thinking visible (Hull, Balka, & Harbin-Miles, 2011). In fact, Danielson (2007) believes that questioning and discussions are critically important instructional strategies that teachers need to regularly use to promote student thinking and learning.

Using questioning within WCD has long been understood to be effective in impacting student achievement (Clarke & Sullivan, 1990; Samson, Strykowski, Weinstein, & Walberg, 1987) and in improving instruction (Capraro, Capraro, Carter, & Harbaugh, 2010; Posamentier, Jaye, & Krulik, 2007; Schuster & Anderson, 2005). Crowe and Stanford (2010) indicate that effective questioning allows teachers to better understand students' actual understanding and misconceptions, critical in developing deeper conceptual understanding, and King (1991) found that guided questioning supports students in becoming effective mathematical problem

solvers. In essence, questioning within WCD simultaneously provides teachers and students with a real-time formative assessment of student understanding and aids in higher-order skills needed to be successful in mathematics.

Effectively using questioning strategies with adolescents is not without challenges. For these students, social acceptance by their peers is paramount. They wish to avoid embarrassment or appearing incompetent (Van Hoose, Strahan, & L'Esperance, 2001). Some students are less willing to take intellectual risks than others unless success is guaranteed (Canfield & Wells, 1976) since voluntarily participating in WCD can be too great a social risk (Wormeli, 2009). In addition, when asked to share ideas, adolescents often focus simply on trying to develop a quick response instead of developing a "strategic" and insightful response (Felton & Kuhn, 2001). Thus, the nature and quality of the response can be less rich and insightful, traits that do not support effective mathematical habits of mind. Nonetheless, active and engaged learning experiences, as evident in focused questioning during WCD, is one of the fundamental pillars of successful middle schools (National Middle School Association, 2003).

Previous research has examined the extent to which students participated in classroom discourse (Huang, Normandia, & Greer, 2005; Nelson, 2009), the roles of

the participants in conducting discourse (Hmelo-Silver & Barrows, 2008; Moschkovich, 2008; Staples, 2007), and the patterns or structure of discourse in the classroom (Hoffman, Breyfogle, & Dressler, 2009; Huang et al., 2005). Furthermore, Almeida (2010) indicated that teachers often only ask lower-level questions, questions that focus on simple recall and that require little critical thinking. However, there is insufficient research investigating teachers' perspectives on questioning in WCD. This would include the strategies that they believe are the most effective in supporting student learning in mathematics through WCD. Thus, the purpose of this study was to address this gap in the research and to better understand the experiences of middle-level teachers as they attempted to initiate and maintain WCD through questioning.

Method

Since teachers' experiences and perceptions were the focus of this study (Brown, 2001), a phenomenon that is naturally dynamic and flexible, a grounded theoretical approach (Guba & Lincoln, 2005) was used. Thirty middle-level mathematics teachers from four different schools originally agreed to participate. Nine of these teachers were purposefully selected (Creswell, 2014), representing each of the four schools, for in-depth semi-structured interviews (McMillan & Schumacher, 2006) to better understand how they used questioning strategies to support WCD.

Participant Selection

Four schools were chosen, each the sole middle school within their respective community from four different geographic and socio-economic areas within this remote state. Selected schools were similar with respect to academic mathematical achievement, ethnic and cultural diversity, and size of the student populations (See Tables 1 and 2). The nine middle-level mathematical teachers were identified through the use of a combined open and closed-form questionnaire (Slavin, 2007). These nine teachers were purposefully selected because they indicated a strong personal belief that WCD was important in

supporting all students in learning mathematics and because there was a distinct difference in the quality of their responses in the open-form portion of the questionnaire when compared to the other teachers within the original sample of 30 teachers. These nine teachers also varied greatly in the number of years teaching and in their grade level/academic emphasis during their preservice teacher development programs (Table 3).

Interviews

One-on-one semi-structured interviews were conducted and each lasted between 90 and 120 minutes. Interviews were recorded and then later transcribed. Analysis began with the researcher open coding the transcripts (Maxwell, 2005), examining minute sections of text to identify instances describing teachers' perceptions. From there, main categories from each interview were then merged into common themes in the data followed by memos about the specific themes to provide further explanation (Mills, 2014). Finally, analysis of the themes in the data was extrapolated to further explain teachers' perceptions for using questioning during WCD. Three themes emerged as teachers discussed their perceptions: the teacher's role in WCD, the processes for selecting student participants, and preparation for responding to questions during WCD.

Findings

The Teacher's Role in WCD

Most teachers interviewed believed that they needed to be the facilitators of WCD. This meant that they were responsible for initiating the conversation and then assuming a less active role in the WCD. The teachers also indicated that often there were times when they needed to ask clarifying questions, provide additional prompts, or redirect the WCD. Also, teachers focused on the need to be cognizant of situations that may be perceived as being shameful or embarrassing when they were trying to engage and encourage all students.

The use of questions to elicit more verbal interactions and exchanges between students was frequently

discussed as an essential task in facilitating WCD. While these teachers also stated that they needed to use various questioning strategies to either initiate or facilitate WCD, the primary discursive exchange described followed the traditional Initiate-Response-Evaluation (IRE) process (Cazden, 2001). That is, the teachers overwhelmingly and routinely described and explained discourse as a process they initiated through the use of a “general” question followed with a response by a student. The final element of the IRE process was an evaluation of the response by the teachers, whether a summary, retelling, or judgment of the response’s worth.

The teachers also believed they needed to ask several different types of questions as they facilitated or initiated WCD. However, the type of question overwhelmingly described was “opinion” type questions. Opinion questions were described as questions that did not have a correct answer or that did not require computations to be performed in order for a student to respond. For example, an opinion question frequently asked by one teacher when the class was analyzing students work was “What do you think this student was thinking?” The teachers stated that opinion questions were useful because they provided a low-stress means by which to initiate WCD and were a way in which to include students who were typically considered low achievers in mathematics and/or reluctant participants in WCD. One teacher believed that students were more likely to participate if the perceived shame of providing an incorrect answer was removed and replaced with a less intimidating opportunity to contribute. In essence, if the students had to claim responsibility for the rationale behind their response, then they would feel more pressure and stress to be correct.

Of the nine teachers interviewed, only two teachers indicated that their role was to use questioning to deepen students’ understanding. Jasmine, one of these teachers, believed that it was important to understand student thinking. However, her vision of probing for deeper understanding meant only asking “why” until the students could no longer provide a response. She stated:

I ask them things like ‘What do you think about this?’ I got to keep asking why. ‘Why did you do that?’ keep prodding; ‘take it to the nth degree guys.’ you know. I think that’s the key, keep pushing ‘why?’ Get them to go until they can’t answer any more.

On the other hand, Erin, the second of these teachers, stated that she would first ask an initiating question. When students raised their hands to respond to her initial question, she would ask one student to provide the answer and then another to provide the justification. After both responses, Erin would not tell the students the correct answer but would instead ask if there were any other possible solutions even if the original solution and justification were correct. Her reasoning for this action was to push students to re-evaluate their responses and to hopefully better understand the mathematics.

Student Selection Process

The teachers described several strategies to promote participation in WCD but the primary two dealt with teachers choosing a student to participate or some type of random selection. They all preferred to first ask questions to the whole-class and then accept responses from those who wished to participate. Some teachers indicated they would only call on those that raised their hands. The teachers would then “randomly” select a student but this meant “just picking one,” without any actual randomized process. Traci believed that asking for volunteers was the only way that she could ask questions because if she tried to include students who did not wish to participate it would incite “chaos” in the classroom.

The teachers strongly believed that they needed to protect students from embarrassment or psychological discomfort during WCD. All of the teachers stated that they would not call on a student who did not wish to participate. Traci commented that “students shouldn’t have to contribute because they often don’t want to be embarrassed, particularly at this age, for giving the wrong answer. It’s just better if I don’t call on these ones.” Warren, in an effort to get more students to volunteer, would “start them out with a really easy problem just to boost their self-esteem.”

Erin, knowing that calling on the same students decreased the richness and complexity of responses, believed that she could still get a wide variety of response without having to call on non-volunteers. She would just have to “open up” the question to the whole-class again and usually a student would provide a different solution.

Even though voluntary responses were more desirable, some teachers “had to rely on more random” methods to select students. The method most frequently reported was cards with their students’ names on them. To determine who would next respond to a question, the teacher would draw a card and read the students name that was listed on the card. Sarah stated, “I find that it keeps them more alert, ready, and into the discussion because they don’t know when they are going to be called on.” Ben thought of this as creating a “shared fear” amongst students because he believed many students did not wish to participate but had to be prepared to participate. At times the teachers would call on a student whose name was not shown on the drawn card, but they would act as though the said name was the one listed. Even though certain students might be reluctant to participate, “forced” participation was sometimes deemed necessary but only if the teacher knew the student had the “right answer.”

Small Group Interactions and WCD

All teachers interviewed reported that they used small group interactions in conjunction with WCD, as a learning experience to practice and feel more comfortable for WCD or as a technique to provide necessary background knowledge for students so that they could be better prepared to participate.

The teachers believed that discourse within small groups served as a springboard to WCD. Students were more knowledgeable and were better able to contribute ideas as a result of small group discourse. Teachers believed that discussing mathematics in smaller groups led to richer discourse within the whole-class setting. Teachers

reasoned that during small group discussions, students had opportunities to hear different ideas presented from different perspectives, resulting in increased facility in talking in front of their peers. Thus, students would be more confident and would volunteer more often when it came time to contribute during WCD, especially for the students who were believed to be shy or reluctant to participate.

Erin had a different view of using small group discourse to support WCD, that of managing the conversation. Erin recognized that, at times, several students would try to contribute to the discussion at the same time. During such instances she believed that it became too difficult for the class follow the discussion, or for her to effectively facilitate the WCD. She felt she was “sort of losing control.” Therefore, Erin would split the class into smaller groups so that all students that wanted to could share their thoughts. After a few moments, she would then bring them back together as a whole class and ask individuals from the groups to summarize the small group discourse. To ensure that all students within the small group were held accountable, she would clearly state that any student could be chosen to summarize. “Just because you raise your hand, all I’m taking that to mean is that your group is ready to answer. You have to make sure that everyone understands and that means you don’t know who I am going to call.”

Carol recognized the benefits of WCD but typically used small groups first because she struggled with asking “good questions” to promote student thinking. “Whole class discussion; I try so hard not to do it because it usually ends up being me. It is so hard asking the right question without them having a chance to talk first.”

Discussion

The semi-structured interviews helped clarify the perceptions these teachers’ had towards using questioning during WCD. Based on the themes evident in the teacher interviews, teacher leaders and educators of pre-service teachers should focus teacher development on effective practices for teachers using questioning during WCD as previously suggested by Moyer and Milewicz (2002). All of the teachers believed that WCD was a useful instructional strategy in some manner and expressed a

desire to use effective questioning for many of the right reasons. However, descriptions of their actions often contradicted their beliefs. These teachers needed to better understand how effective questioning strategies within WCD could support students' thinking and development of mathematics.

The teachers also believed that there were specific benefits for teachers and students alike and that the teachers had specific roles when facilitating WCD. Specifically, they strongly believed that they needed to initially guide the discourse, create emotionally supportive classrooms, question students to gauge their understanding, and gradually shift the leadership responsibilities of a facilitator to the students. However, they never discussed how they shifted the responsibility of facilitating the WCD to students. Establishing student-centered classrooms is critical in creating authentic, complex, and challenging learning environments (Land, Hannafin, & Oliver, 2012), environments that promote relational understanding in mathematics (Skemp, 1976). Furthermore, and even more powerfully, they indicated that they had to initiate the discussion, suggesting that students are incapable of asking meaningful questions related to the mathematics. Teachers, while aware of students' developmental needs, never discussed how they might foster a culture that would account for these needs while also engaging all students in discourse, choosing to continually call only on those students who volunteered. If a student was determined to be "shy" or "quiet" then they were allowed non-participation. Only two teachers indicated that questioning should be used to deepen student understanding, these teachers only used superficial questions to perform this function. It is unclear how students' actual understanding of the mathematics could be determined from opinion or "general" questions.

In-service and pre-service teachers need more guided practice in implementing their beliefs about questioning. Teachers eventually need to turn over questioning and discussion to students as well as incorporating equitable strategies for including all students, not just those that volunteer, in WCD. The NCTM's (2000) *Equity Principle* states, "All students,

regardless of their personal characteristics, backgrounds, or physical challenges, must have opportunities to study--and support to learn—mathematics" (p.12). Considering the *Equity Principle* in light of the Common Core State Standards Initiative (2010) *Standards for Mathematical Practices*, which state that "mathematically proficient students...justify their conclusions, communicate them to others, and respond to the arguments of others" (p. 6-7), this means all students need to be actively engaged in talking and reasoning about mathematics, not just those students that volunteer to participate. Furthermore, by deliberately restricting or excluding adolescents from WCD, teachers convey the message that not all ideas or individuals are important, when, in fact, they are. In essence, teachers need to be mindful of adolescents' affective development so that students do not withdraw from the learning experience (Van Hoose, Strahan, & L'Esperance, 2001) but teachers can also promote a supportive learning environment for all learners to openly participate in WCD.

Building strong, efficient, and creative mathematical thinkers is paramount and WCD can support the development of these traits in students. With the adoption of Common Core State Standards (CCSSI, 2010) and the current use of structured response questions on student assessments, WCD may become an integral component of mathematics education, especially at the middle grades where students are first beginning to engage in these types of discourse. With that said, the beliefs of those responsible for enacting the curriculum have tremendous influence in the types of learning experiences students encounter. Understanding how teachers perceive questioning with respect to WCD can help teacher-leaders further guide and create meaningful professional development so that students can learn to effectively reason and communicate their ideas. Educators devote much time to aligning curricular goals but substantive growth will be difficult to maintain if perceptions towards effective pedagogical practices are not aligned with the content. Perhaps it is time for mathematics educators to have a more in-depth discussion on discourse in the classroom. Students deserve it.

Table 1

Teachers' grade level & academic emphasis background sorted by number of years teaching mathematics.

Teacher	School	Years teaching mathematics	Grade level & Academic Emphasis
Erin	School 1	13	Middle level—mathematics
Sarah	School 2	11	Elementary
Carrie	School 3	10	Middle level—mathematics
Jasmine	School 2	8	Elementary
Ben	School 2	8	Elementary
Warren	School 2	5	Secondary—business
Samantha	School 4	5	Secondary—mathematics
Traci	School 4	4	Elementary
Carol	School 4	3	Elementary

Table 2

Total School enrollment and most common ethnicities found in each of the four middle schools represented as a percentage of total school enrollment.

	School 1	School 2	School 3	School 4
Total Enrollment	654	1367	940	1463*
Filipino	7.2	41.1	25.9	22.2
Japanese	6.4	4.3	18.4	6.6
Part-Hawaiian	25	15.9	15.5	26.2
Hawaiian	3	0	4.1	0
Caucasian	34	7.1	7.8	13.2
Samoan	0	4.7	3.4	4.1
African-American	0	3.6	3.1	3.1
Hispanic	5.4	0	0	3.8

*School 4 Middle School consisted of grades 6, 7, and 8; all other schools were only grades 7 and 8.

Table 3

Mathematics performance by year as percentage deemed proficient in grade-level mathematics according to annual state test.

	Year 1	Year 2	Year 3
School 1	42	47	51
School 2	43	42	43
School 3	52	48	49
School 4	33	45	49

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