

Author Biographies

The Author of the work is Lillie R. Albert

Lillie R. Albert an associate professor at Boston College Lynch School of Education, has a Ph.D. in Curriculum and Instruction from the University of Illinois at Urbana-Champaign. Her research focuses on the influence that sociocultural historic contexts have on learning and development of learners across the lifespan. Her specialization includes the exploration of the relationship between the teaching and learning of mathematics and the use of cultural and communicative tools to develop conceptual understanding of mathematics. She has published her research in leading national and international journals in her field and presented papers at major research conferences. Her other books include *The Decision to Learn* with Monica Digman and *Student Self-Identified Multiple Intelligence Profiles: A Systematic Technique for Successful Mathematical Problem Solving* with Sheila Cutler Sohn.

She has served as the primary investigator and as a research associate for a number of funded projects by the GE Foundation and the National Science Foundation. She is an active member of the National Council of Teachers of Mathematics and the American Educational Research Association. Other activities include serving as an editorial review panelist for several professional journals; working with the National Research Council of the National Academies as an education panelist; participating as a panelist and site PI for TEDS-M Mathematics and Mathematics Pedagogy Scale Anchoring Study, which is carried out under the sponsorship of IEA and directed by researchers at Michigan State University; and collaborating with mathematics education scholars at Seoul National University of Education, Seoul, South Korea to explore government policies in supporting the preparation of mathematics teachers.

In Collaboration with

Danielle Corea graduated from Boston College in 2010 with a bachelor degree in English and Human Development. She worked as a Research Fellow under Prof. Albert for 3 years of her undergraduate study. She later completed a year of post-graduate service through AmeriCorps VISTA in the Center for Faith and

Public Life at Fairfield University in Connecticut. Currently, she is the program coordinator for the Center. She focuses her work on service learning and the Jesuit Universities Humanitarian Action Network (JUHAN).

Vittoria Macadino graduated from Boston College in 2010 with a Bachelor's Degree in Secondary Education and Mathematics. She was the recipient of the Albert A. Bennett Award for outstanding academic achievement in mathematics. In 2011, Ms. Macadino completed a Master's Degree in Curriculum and Instruction through the Fifth Year Program at Boston College. For all 5 years of her undergraduate and graduate studies, she worked closely under Prof. Lillie Albert as a teaching assistant and Research Fellow contributing to the research, analysis, writing, and editing of many book chapters and articles on mathematics education. Most recently, she collaborated with Dr. Albert and graduate student Karen Terrell on an article entitled *The Mathematics Excellence Partnership: Developing and Sustaining Professional Learning Communities*, currently *in press* in the *Journal of Mathematics Education Leadership*. For the past 2 years, Ms. Macadino has also worked as a mathematics tutor in the Options Through Education Summer Transitional Program, helping to prepare a diverse group of students for entry into Boston College. She is currently teaching mathematics at Newton North High School in Newton, Massachusetts.

Index

A

Adult learner, 68, 93

C

Collaboration, 14, 17, 39, 40, 51, 60, 69, 70, 75, 91, 92, 95
Collaborative, 3, 16, 17, 35, 36, 40–44, 47, 48, 50, 55, 59, 61–70, 77, 81, 82, 84, 91–93
Concept, 3, 6–9, 11–27, 31, 35, 38, 40, 42, 45, 50, 55, 60, 61, 66, 70, 73–75, 77, 84, 85, 89–91, 93
Conceptualization, 12, 21, 24, 61
Content, 2, 3, 16, 24, 31–34, 37, 39, 44–47, 50, 51, 54, 59–85, 91–93
Content knowledge, 2, 3, 50, 59–85, 91, 93
Context, 1–5, 7, 11, 13–16, 18–24, 26, 34–36, 39, 41, 49, 51–53, 59–64, 66, 75, 80, 81, 83, 84, 89–93, 95
Cultural, 1, 3, 5–7, 11–13, 18, 22, 26, 43, 51, 92, 95
Culture, 3, 4, 6, 7, 27, 33
Curriculum, 69, 95, 96

D

Development, 1, 3–7, 9–25, 27, 31, 32, 34, 36, 39, 51, 59–68, 70, 72, 74, 75, 77, 80–84, 89–93, 95
Dialogue, 25, 26, 34, 59–61, 63, 64, 67, 68, 70, 72–74, 77, 78, 81, 82, 84, 91
Discourse, 17, 52, 61, 83, 84
Drawings, 3, 6, 12, 31–56, 71, 72, 74, 89–90

E

Epistemological, 2, 24, 34

F

Function, 5, 7–16, 18, 19, 24, 25, 34, 60–62, 65–67, 81–83, 90, 92, 93

H

Human learning, 34, 90

I

Images, 31–56, 89, 90
Instruction, 2, 3, 6, 11–13, 15, 16, 22, 31, 32, 36, 40–44, 47–54, 59–85, 91, 93, 95, 96
Intellectual development, 3–6, 9, 14, 15, 27, 64, 82, 84
Internalization, 6, 18–21
Intersubjectivity, 14, 17, 18, 89, 91

K

Knowledge, 2, 3, 6, 7, 14–17, 22, 24, 27, 31, 32, 35, 36, 39, 49, 50, 59–85, 89, 91–93
Knowledgeable other, 3, 14, 59, 60, 66, 75–81, 83, 84, 92

L

Language, 3, 6, 8, 10, 18, 24–27, 33, 59–61, 63, 66, 68, 70, 72, 80–84, 89
Learners, 3, 9, 10, 13–18, 31, 34, 36, 59–64, 68, 70–75, 77–84, 89, 91–93, 95
Learning, 1–7, 9, 11, 13–20, 25–27, 31–56, 59–62, 64, 66, 68–75, 77, 80–85, 89–93, 95, 96

M

- Mathematics, 2–9, 11–13, 15–18, 21, 22, 26, 31–56, 59–61, 63–68, 70, 72, 74, 75, 82–85, 89–93, 95, 96
- Mathematics education, 2, 6, 8, 31, 50, 64, 89, 90, 95, 96
- Mediation, 6–9, 12, 18, 27, 59, 60, 80

N

- Narratives, 3, 32–37, 43, 49, 53, 89, 90

P

- Pedagogy, 1–3, 6, 24, 32, 34, 36, 39, 41–44, 47, 51, 52, 84, 89, 93, 95
- Perception, 2, 3, 10, 12, 31–56, 90
- Performance, 14–16, 19, 21, 35, 59, 60, 63, 74, 82
- Practices, 2, 3, 19–21, 24, 31–37, 42, 48–50, 52, 53, 62–64, 69, 70, 75, 81–84
- Problem, 5, 7, 10, 12, 14, 15, 17, 19–21, 26, 31, 37, 45, 50, 52, 59–62, 64–67, 69–73, 75–78, 80–84, 91, 92, 95
- Professional development, 3, 59, 61, 63–68, 70, 75, 80, 82–84, 91
- Prospective teacher, 2, 3, 31–56, 89, 90
- Psychological, 1, 2, 6, 7, 9–12, 24, 34, 90
- Psychology, 1, 2, 5, 31, 93

R

- Reflection, 2, 3, 32, 34–36, 43, 52, 84, 89, 90, 93
- Representation, 8, 31, 36, 38–41, 44–47, 49, 50, 55, 67, 71, 72, 74, 77, 80, 84, 90
- Rhetorical, 1–2

S

- Scaffolded instruction, 2, 3, 59–85, 91, 93
- Scaffolding, 3, 15, 16, 21, 39, 40, 50–52, 59–63, 68, 70, 72, 77, 79–83, 92, 93
- Self-regulation, 7, 11, 32
- Signs, 6–9, 12, 18, 19, 34, 89, 90
- Social interaction, 3, 11–13, 16, 18, 22, 60–62, 64, 67, 73, 81–82, 91, 92
- Sociocultural, 1–27, 32, 34–36, 39, 49, 51–53, 60, 61, 64, 82, 89–93, 95
 - historic theory, 1–27, 61, 90–92
 - theory, 2
- Speech, 7, 18, 19, 25, 82, 83

T

- Teacher preparation, 32, 53
- Teaching, 1–4, 6, 16, 18, 27, 31–56, 61, 64, 65, 67, 69–72, 74, 81–84, 90–93, 95, 96
- Thinking, 1–4, 10, 18–27, 31, 34, 52, 53, 60–62, 65, 67, 68, 70, 72, 73, 75, 79, 83, 84, 90–92
- Tools, 2–7, 9, 12, 13, 16, 18, 19, 23, 27, 32–34, 36, 53, 60, 61, 66, 73, 81, 89–92, 95
- Traditional, 17, 32, 40–44, 47, 48, 50, 51, 83

V

- Volition, 77, 82
- Vygotsky, 1–27, 32, 34, 39, 60, 61, 63, 64, 74, 80, 82, 83, 89–93

Z

- Zone of proximal development, 2, 13–17, 34, 39, 51, 60, 72, 74, 77, 82, 89, 92–93