

### Appendix F. Participants' Self-Reported Gains in Metacognitive Knowledge and Representative Participants' Responses

Metacognition Framework Dimensions	Reported Metacognitive Knowledge Gained	Representative Participants' Responses
Strategy Knowledge or Conditional Knowledge  (N = 51 Responses)	Knowledgeable of effective study strategies (21.7%, N=25)	<ul style="list-style-type: none"> <li>-I believe that [the] metacognition [lesson] has helped me think more about the things I don't know and to go from there.</li> <li>-It [The metacognition lesson] helped me better learn my study habits and how to improve them.</li> <li>-It [The metacognition lesson] helped me learn how to study.</li> <li>-It [The metacognition lesson] helped by introducing me to new study strategies.</li> <li>-I learned more study methods such as teaching classmates how to do problems and drawing diagrams and flowcharts to help me better understand the material.</li> <li>-It [The metacognition lesson] helped me learn how to take notes.</li> <li>-The metacognition homework taught me new ways to study and take notes that sometimes helped recall things in class and /or exams.</li> <li>-It [The metacognition lesson] helped me find study habits that were beneficial to chem [chemistry].</li> <li>-It [The metacognition lesson] helped by changing different habits that I had to ones that I could use better.</li> <li>-It [The metacognition lesson] has helped me learn new ways to study.</li> <li>- [The metacognition lesson] Reinforced my current strategies used to studies as well as provided me with additional strategies in order to be better equipped for exams.</li> <li>-[I] Learned new methods to learn, helpful tools for success.</li> <li>-I applied the knowledge from it and used it for studying.</li> <li>-It [The metacognition lesson] helped me adopt different study habits that will help me in the future.</li> <li>-[The] Metacognition [lesson]helped me address my study habits.</li> <li>-[The] Metacognition [lesson] has allowed me to more effectively study for exams.</li> <li>-It [The metacognition lesson] gave me examples of strategies I can utilize to improve my studying.</li> <li>-It [The metacognition lesson] helped me better learn how to study for tests.</li> <li>-It [The metacognition lesson] showed me new studying techniques.</li> <li>-The metacognition [lesson] helped me by giving me a better way to study.</li> <li>-It [The metacognition lesson] helped me to learn to practice concepts instead of memorizing information.</li> <li>-It [The metacognition lesson] helped me figure out how to study a little bit better. I understand what works better for me.</li> </ul>

Appendix F (Continued)

Metacognition Framework Dimensions	Reported Metacognitive Knowledge Gained	Representative Participants' Responses
Strategy Knowledge or Conditional Knowledge	Applying suitable learning strategies (17.4%, N = 20)	<ul style="list-style-type: none"> <li>-It [The metacognition lesson] helped me get a feel for how to study for chemistry.</li> <li>-Just that doing more practice problems helped.</li> <li>-I read more of the course material and took more time with practice problems.</li> <li>-I put more time into practicing problem sets.</li> <li>-It [The metacognition lesson] helped me to see other study strategies that helped me adjust to studying for this course.</li> <li>-Using different study tools and reading helped hard concepts stick.</li> <li>-[The] Metacognition [lesson] helped me through practicing the problems through examples.</li> <li>-I read more of my book and went over my homework and exams every time to make sure I then understand what I originally got wrong.</li> <li>-It [The metacognition lesson] helped me figure out the best way to study for a test</li> <li>-I started summarizing my notes after class.</li> <li>-I just applied the lesson much more to my study strategies.</li> <li>-It [The metacognition lesson] made learning concepts easier and faster because the repetition would engrave in my head.</li> <li>-It [The metacognition lesson] made me go through problems that could be on the test.</li> <li>-I learned to work on problems over and over again to make sure I understand.</li> <li>-When reading I take notes and I begin studying easier now for repetition.</li> <li>-It [The metacognition lesson] helped me to figure out my best study strategy.</li> </ul>
	Improved problem-solving approach (5.2%, N = 6)	<ul style="list-style-type: none"> <li>-It [The metacognition lesson] helped me analyze problems to better get to a solution.</li> <li>-Work through problems until I felt confident about solving them.</li> <li>- [The metacognition lesson] Helped me think actively about problems when solving them.</li> <li>-I only really used problem-solving to help teach me the ways to do them.</li> <li>-I know how to apply myself and my study habits in order to solve problems and create solutions.</li> </ul>

Appendix F (Continued)

Metacognition Framework Dimensions	Reported Metacognitive Knowledge Gained	Representative Participants' Responses
Metacognitive Knowledge: Declarative Knowledge  (N = 29 Responses)	Identifying and addressing learning gaps (17.4%, N=20)	<p>-It [The metacognition lesson] helped my focus on the things I don't know to gain a better understanding.</p> <p>-I read more of my book and went over my homework and exams every time to make sure I then understand what I originally got wrong.</p> <p>-[The] Metacognition lesson explains how important it is to understand what/how much you know.</p> <p>-It [The metacognition lesson] helped me analyze what I already know and what I need to work on.</p> <p>-[The] Metacognition [lesson] helped me realize that I cannot just try to memorize the material as I have done in the previous course.</p> <p>-Before I attempt a homework problem, I make sure to completely understand the lesson.</p> <p>-The metacognition lesson made me more aware of when I was learning, so I knew how to take more effective notes.</p> <p>-The [metacognition lesson] helped me realize what I do and don't know.</p> <p>-[The] Metacognition [lesson] taught me the importance of knowing strengths and weaknesses and then using those to my advantage.</p> <p>-It [The metacognition lesson] taught me that just reading through my notes won't work.</p>
	Improved understanding of concepts (7.8%, N =9)	<p>-[The] Metacognition [lesson] has helped me understand some of the concepts but not all.</p> <p>-[The metacognition lesson] Taught me how to study effectively so that I could learn and not just memorize the material and understand concepts better.</p> <p>-It [The metacognition lesson] made me more aware of what I was learning.</p> <p>-It [The metacognition lesson] helped me understand how to do well in everything.</p> <p>-It [The metacognition lesson] helped me figure out what more I can do to help myself understand concepts.</p> <p>-It [The metacognition lesson] helped a little at first to actually understand the concepts better as the course went on.</p> <p>-It [The metacognition lesson] also helped me understand which concepts I wasn't understanding completely so I could go back and grasp them better.</p> <p>-It [The metacognition lesson] taught me to try comprehending and reinforcing concepts rather than memorizing them.</p>