History of mathematics courses for pre-service mathematics teachers (PSMTs) are often taught with an emphasis on biography or anecdotes, with the intent of balancing the varying mathematical ability of the PSMTs with typical uses of the history of mathematics in teaching. Still, it is important to recognize that "future high school teachers will be well-served by deeper knowledge of the historical and cultural roots of mathematical ideas and practices" (CBMS, 2001, p. 142). This also implies the necessity for PSMTs to successfully engage in not only learning about and practicing mathematics but how these experiences translate into future practice. The paper describes how students draw upon their experiences with various course activities to consider the use of an historical perspective in teaching mathematics. The investigation of PSMTs’ experience in a required "Using History in the Teaching of Mathematics" course used data collected from three assignments: a reflective journal, participation in a "book club" experience, and the construction of a teaching unit. Discussion of the research will include a description of: the three course assignments; preliminary findings from one semester of data; and modifications on a subsequent offering of the course based upon the data. (Received September 15, 2006)