Students who adopt an active role in their own learning are considered self-regulated learners. Self-regulated learning requires students to actively monitor and adjust their behavior, motivation, and cognition (Pintrich, 1995). Self-regulation of behavior is using available resources to construct an optimal learning environment. Self-regulation of motivation is perceiving oneself as capable, successful, and self-sufficient; and self-regulation of cognition is the use of appropriate cognitive strategies to enhance performance (Pintrich; Zimmerman, 1986). Self-regulation typically occurs cyclically. A student begins the cycle by using preexisting knowledge to set a goal and develop a strategy to obtain that goal. The student will then implement that strategy, use feedback to evaluate the effectiveness of the strategy, and make necessary adjustments to it throughout the process. After reaching the goal, a final assessment of the overall effectiveness of the implemented strategy will be used to restart the cycle as another goal is set (Dembo & Eaton, 2000; Zimmerman, 1990, 1998). This continuous cycle of active participation in one’s own learning is a source of many academic advantages.

One advantage of self-regulated learning is exceptional academic performance, and this is evident throughout the educational psychology literature. Pintrich and DeGroot (1990) found that cognitive strategy use and self-regulation were positively correlated with high levels of classroom performance. Students’ perceived efficacy for self-regulated learning was positively correlated with their perceived efficacy for academic achievement, which in turn was positively correlated with actual course grades (Zimmerman, Bandura, & Martinez-Pons, 1992). Self-regulated learning is not only directly correlated with academic achievement; it is also correlated with other indirect indicators of achievement, such as status as an advanced student. Previous research has shown that gifted students and students on advanced achievement tracts use self-regulated learning strategies significantly more than regular students and students of other (lower) achievement tracts (Zimmerman & Martinez-Pons, 1986, 1990).

Because self-regulated learning is advantageous, how a student acquires the capacity to self-regulate when learning becomes an important question. Previous research has shown that modeling is an influential way to introduce self-regulated learning strate-
Thus, school and home environments are critical to the development of self-regulated learning. Schools should have models of self-regulated learning; these models could be instructors and/or peers (Pintrich, 1995; Schunk & Zimmerman, 1997; Zimmerman, 2001). Instructors should also provide students with opportunities that allow practice of self-regulated learning (Pintrich; Zimmerman, 1998). Additionally, whether at home or at school, an environment that is conducive to self-regulated learning should have minimal distractions (Zimmerman, 2001). Finally, self-regulated learning develops in homes that have parental support for the students’ academic achievement (Zimmerman, 1998). Supportive parents assist their children in making time for learning, eliminate distractions in the home, monitor progress, and reinforce successes. Therefore, the ideal environment for the development of self-regulated learning should have models that are familiar and close to the students, an abundance of homework, no distractions from learning, and parental support for the students’ academic achievement.

One critical issue for self-regulated learning is whether one can determine where an ideal environment for its development exists. It appears that size of the learning environment is relevant to the development of self-regulated learning. There are smaller student to teacher ratios in smaller schools. Accordingly, there are fewer student-created distractions from learning in small schools than in large schools, and more models per student. Opportunities for modeling in small schools are further improved by their structure. According to Raywid small schools are not in need of as much organization as large schools, allowing them to be structured more communally. A communal environment is flexible, casual, and lacks strict formal organization (Lee & Smith, 1995). According to Lee and Loeb (2000) and Raywid (1998), a communal structure results in more intimate and personal relationships between students and teachers. In addition to fewer distractions and enhanced opportunities for modeling, small schools also have greater parental involvement in their students’ learning (Gardner, Ritblatt, & Beatty, 2000). Consequently, small schools may possess an advantage over large schools pertaining to the development of self-regulated learning.

The most common form of secondary school is a public school, and the literature suggests that small public schools would have an advantage over large public schools regarding the development of self-regulated learning. In addition, other forms of secondary schooling may have similar advantages to the small public schools in the development of self-regulated learning. Most parochial schools, which are usually comparable in size to small public schools, should also have fewer student-initiated distractions, more models per student, and a less formal organization. According to Sergiovanni (1995) parochial schools have an advantage over public schools because it is easy to operate a less formal, communal organization with parents who feel a personal commitment to the school through faith. Most parents choose to send their children to parochial schools because they want faith to be part of the children’s education. Sergiovanni states that this religious connection increases parental commitment to the school and to the education of the children.

Another option for secondary schooling would be to educate children at home. A home environment for schooling usually provides a very low student to teacher ratio, because there is usually one parent instructing the children of one household. This ratio provides even fewer students per model and diminishes the possible distractions of a classroom environment. Home schooling also shows an obvious parental investment in the education of the children. So, in addition to having similar advantages to small public schools, parochial schools and home schooling also appear to have greater parental involvement than do public schools, which suggests that parochial and home schooling may provide the most ideal environment for the development of self-regulated learning.

Although ample research exists regarding the effects of self-regulated learning on academic achievement, there is a dearth of research regarding the ideal environment for the development of self-regulated learning in secondary schools. Therefore, the purpose of this study was to examine the relationship between secondary school environment and student perceived self-regulated learning. Based on the advantages found in small schools, this study hypothesized that college students who attended small secondary schools would report greater self-efficacy for self-reg-
ulated learning than those who attended large secondary schools. Based on the greater parental involvement apparent in parochial and home schools, this study also hypothesized that college students who attended parochial or home schools would report greater self-efficacy for self-regulated learning than those who attended small public schools.

**Method**

**Participants**

One hundred twenty-five individuals volunteered to participate in the study. Most of the participants were students enrolled in introductory psychology courses at a small Midwestern university and fulfilled a course requirement by participating in the study. Other participants who attended parochial or home schools were recruited outside of introductory psychology courses. The data from nine participants were excluded because the students attended more than one high school during their secondary education and the schools varied in size. The participants were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct” (American Psychological Association, 2002).

**Materials**

The participants completed a demographic survey, which was created by the experimenter, to obtain information about their college status and secondary school experiences. The demographic survey included items that addressed the size and type of both the junior and senior high schools the students attended as well as whether or not they took any honors, advanced placement, or other types of advanced courses during junior or senior high school. The participants were assigned to one of five groups, based on their responses to the demographic survey. They were categorized according to those who had attended public high schools (n = 83), parochial high schools (n = 23), or home schools (n = 10). The group of participants that had attended public high schools was further categorized by school size using enrollment information from the Kansas State High School Athletic Association (2003). Large (n = 38), medium (n = 24), and small (n = 21) public high schools, respectively, had enrollments ranging from 1,543 to 508, 507 to 132, and 131 to 20 students among their sophomore, junior, and senior classes. The participants also completed a Self-Efficacy for Self-Regulated Learning Scale (Gredler & Garavalia, 2000), which is a 31-item scale with 5-point Likert-type response options used to measure self-reported self-regulatory behaviors of the participants. The Self-Efficacy for Self-Regulated Learning Scale contains five factors: General Organization and Planning, External Regulation, Typical Study Strategies, Environmental Restructuring, and Recall (Gredler & Garavalia). According to Gredler and Garavalia, coefficients alpha for the five factors were 0.87, 0.68, 0.74, 0.74, and 0.73, respectively.

**Procedure**

Participants were run in groups of 30 or fewer, in less than 30 min. The experimenter administered the demographic survey and the Self-Efficacy for Self-Regulated Learning Scale. The participants were debriefed and thanked for their participation.

**Results**

The self-efficacy for self-regulated learning scores were calculated for each participant. Mean scores as a function of high school environment are illustrated in Figure 1. The data from participants who attended medium size public high schools were not included in the analysis because school sizes varied from nearly large to nearly small, and were not uniformly distinct from the other categories. The data from participants who attended parochial schools were also not included in the analysis because the parochial schools varied in size and were, therefore, too variable to categorize as one group. Mean scores (and standard deviations) for participants who attended home, small public, and large public schools were 122.08 (9.32), 117.19 (11.11), and 111.79 (14.00), respectively.

A one factor between groups design analysis of variance was calculated. There was a significant main effect for high school environment, F(2, 68) = 3.48, p = 0.04. Tukey post hoc tests (p < 0.05) found that par-

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**FIGURE 1**

Mean self-efficacy for self-regulated learning scores and standard deviations as a function of secondary school environment.
participants who attended home schools had higher self-efficacy for self-regulated learning scores than did those who attended large public schools.

A second analysis was conducted to investigate the hypothesis regarding private versus public education. Data from participants who attended parochial and home schools combined were compared to the data from participants who attended public schools. Mean self-efficacy for self-regulated learning scores (and standard deviations) for participants who were privately and publicly educated were 117.73 (15.55) and 113.43 (12.63), respectively. Though privately educated students had higher self-efficacy for self-regulated learning scores, an independent t test showed no significant difference between privately and publicly educated students, t(1, 121) = 2.60, p = 0.11.

**Discussion**

The hypothesis, that college students who attended home schools would report greater self-efficacy for self-regulated learning than those who attended public schools, was supported. These data suggest that the home school environment, the idealized personal environment, with enhanced opportunities for modeling due to smaller student to teacher ratios, fewer distractions, and flexible organization, benefits the development of self-regulated learning. Additionally, the parental investment in home schooling may also contribute to what these data suggest to be the best environment for the development of self-regulated learning. However, the hypothesis, that college students who attended small public schools would report greater self-efficacy for self-regulated learning than those who attended large public schools, was not supported; although the mean scores were in the expected direction. Future research testing a larger group of college students who attended small public schools may obtain significant results.

The hypothesis, that students who attended parochial schools would report greater self-efficacy than those who attended public schools, was not directly assessed because the number of students who attended parochial schools was far less than the number of students who attended public schools. However, to examine the difference in self-efficacy for self-regulated learning between privately and publicly educated students, the data from students who attended parochial schools was combined with the students who attended home schools and compared to the data from students who attended public schools. Although there was not a significant difference in self-efficacy for self-regulated learning between privately and publicly educated students, like small schools, the results were in the expected direction and approached significance.

The lack of significant results could be attributed to the difference between the group sizes; there were a large number of publicly educated students and a small number of privately educated students. In addition, a number of the private schools had large student populations and could be confounded by school size.

Future research regarding private versus public school environments should draw more participants from parochial and home schools and subcategorize parochial schools according to size. Another limitation to this study is that all of the participants pursued higher education, and this may have provided a sample of students who are naturally very self-regulated. Future research should include a comparison group of participants who did not pursue higher education. Additionally, the findings of this study are limited to schools in Kansas. Future research should include schools from various geographic locations so that the results may be generalized to more schools.

This study is at least a first step in demonstrating that smaller, more personal school environments create an advantage. This advantage seems to be partially due to size, as both small public schools and home schools have fewer students, which results in more models per student, and fewer student initiated distractions. Additionally, previous research has shown that the less structured, more flexible school organization, which is present in small schools and even more present in home schools, results in enhanced relationships between students and teachers (Lee & Loeb, 2000; Raywid, 1998). Thus, smaller secondary school environments seem to lead to enhanced modeling of self-regulated learning, which in turn should lead to the acquisition of self-regulated learning skills. And because previous research has shown that one of the benefits of self-regulated learning is better academic performance, the enhanced modeling present in smaller secondary schools should lead to improved academic performance (Zimmerman & Martinez-Pons, 1986, 1990).

The implications for this research, and future research similar to it, are broad. Education is critical for the successful future of our society and because self-regulated learning is advantageous, it can enhance the quality of education in our schools. There is a current political focus on education in the United States with the No Child Left Behind Act. In order to continue to receive government funding, teachers must improve standardized test scores; it is possible that in order to improve standardized test scores, teachers may begin to teach to the standardized tests. If teachers begin to teach to a specific test, students may not learn other important skills.
Additionally, there is a financial focus on education because of budget crunches nationally and at the state level, as well. These budget crunches could be driving high school consolidation or closure and consequential classroom enlargement. Although research suggests that small classrooms have advantages, in reality classrooms are continually growing farther away from this ideal small size. This research suggests that this classroom enlargement may be detrimental to the development of self-regulated learning and the overall quality of education in our society.

References