INTRINSIC MOTIVATION TO LEARN involves engaging in learning opportunities because they are seen as enjoyable, interesting, or relevant to meeting one’s core psychological needs (13). As a result, intrinsic motivation is associated with high levels of effort and task performance (11). Students with greater levels of intrinsic motivation demonstrate strong conceptual learning, improved memory, and high overall achievement in school (7). These students are more likely to experience a state of deep task immersion and peak performance (14, 15). Studies have also shown that students with higher intrinsic motivation are also more persistent (9, 17). In fact, intrinsic motivation is a powerful factor in performance, persistence to learn, and productivity (8).

Because intrinsic motivation has such a positive impact on school performance, we administered the Intrinsic Motivation Inventory (IMI), a survey that assesses levels of intrinsic motivation, following our traditional course in renal physiology taken by second-year medical students. Accordingly, we asked two pertinent questions: 1) What percentage of our class has low intrinsic motivation? and 2) Do students with low intrinsic motivation have lower academic performance?

All procedures were reviewed and approved by the Institutional Review Board of Edward Via College of Osteopathic Medicine, and informed consent was obtained from all students. The class was comprised of 159 medical students (89 females and 70 males). Class sessions were lecture-based with the use of instructor-generated PowerPoint slides. Students were also encouraged to supplement lecture content by reading the recommended textbook. All sessions were taught by the same instructor, who has had more than 5 yr of experience teaching renal physiology to medical students.

The IMI is a multidimensional device that assesses students’ motivation for a particular task. The tool assesses students’ interest and enjoyment, perceived competence, perceived choice, and relatedness while performing a specific activity. The interest and enjoyment subscale is considered the self-reported measure of intrinsic motivation. The perceived choice, perceived competence, and relatedness subscales are theorized to be positive predictors of both self-reported and behavioral measures of intrinsic motivation. There is strong support for use of this assessment tool to evaluate an individual’s intrinsic motivation in terms of both the validity (10) and reliability (16). Additional information as well as access to the IMI can be obtained online at http://www.selfdeterminationtheory.org/questionnaires/10-questionnaires/50.

The IMI was made available online at the end of the course over a 7-day period. To encourage students’ voluntary participation, three e-mail reminders were sent during the time period that the survey was available. Of 159 students, 133 completed the survey (76 females and 57 males) for a survey response rate of 84%.

To determine how many students had low intrinsic motivation, all survey scores for the interest and enjoyment subscale were averaged, and the standard deviation (SD) was calculated. Subsequently, low intrinsic motivation was operationally defined as scores 1 SD or more below the mean. Accordingly, the low intrinsic motivation (LIM) group comprised students who scored 1 SD or more below the mean on the interest and enjoyment subscale. All students with scores above this value comprised the high intrinsic motivation (HIM) group. The students within each group remained consistent for calculating the mean values for the remaining parameters (i.e., perceived competence, perceived choice, relatedness, and course grade). Descriptive statistics and means ± SE are reported. An unpaired Student t-test was used to determine mean differences between the HIM group and the LIM group. Statistical significance for group mean comparisons was set a priori at P < 0.05.

Figure 1 presents the interest and enjoyment, perceived competence, perceived choice, and relatedness subscales of the IMI for the HIM and LIM students. A total of 29 students (21.8% of the class) had low intrinsic motivation, which was defined as being 1 SD or more below the mean interest and enjoyment survey value.

The perceived competence, perceived choice, and relatedness subscales are theorized to be positive predictors of intrinsic motivation. All subscales were significantly lower in the low intrinsic motivation group (Fig. 1).

Importantly, low intrinsic motivation was also associated with lower class performance. Specifically, course grades were lower for the LIM group compared with those with HIM (Fig. 2).

Thus, results document that 21.8% of our class scored low on the interest and enjoyment subscale of the IMI documenting low intrinsic motivation. These same students also scored low on the perceived competence, perceived choice, and relatedness subscales of the IMI (Fig. 1). Importantly, the students with low intrinsic motivation also had lower class performance (Fig. 2).

It is important that students develop an interest and enjoyment for learning. In this context, inspiring and motivating students is critical. Once students are inspired and motivated,
there are countless resources available to learn more about a subject. (4) As examples, a recent study from our group with undergraduate students (1) as well as others demonstrated that the level of intrinsic motivation has the most positive impact on school performance (3, 5, 6, 12, 17, 18). Accordingly, educators are profoundly interested in how to motivate individuals they educate to mobilize their efforts and persist at tasks inside and outside the classroom. Although students are often moved by external rewards such as grades or evaluations, students are motivated mainly from within by interests and curiosity. These intrinsic motivations can sustain passions, creativity, and efforts toward learning.

Education influences every aspect of life. In fact, human survival and our quality of life depend on educated citizens capable of making informed decisions regarding the challenges of the 21st century (2). Our most valuable resources in addressing the challenges of the 21st century are our students, each of whom is indispensable as we search for solutions to these challenges; no talent should be wasted. To avoid the loss of talent, procedures for early identification of students who may have low intrinsic motivation should be established. Although this is a challenging problem, solving it has powerful implications for students, the school they attend, and society as a whole. Accordingly, we are advocating a longitudinal experiment in which intrinsic motivation is assessed at the outset and periodically during a curriculum that fosters a cooperative learning community.

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

AUTHOR CONTRIBUTIONS


REFERENCES