

Editorial

Smarter, Not Harder

Those familiar with the cartoon *Dilbert* (see <http://www.unitedmedia.com/comics/dilbert/index.html>) will remember that one of the favorite sayings of the pointy-haired boss is "Work smarter, not harder." This irritating cliché also seems to be a guiding principle adopted by many of the bodies that control education. One result of following such a principle is that to minimize salary costs in education class sizes are allowed to increase. Although some studies suggest that smaller class sizes are particularly important for students in the lower grades (Biddle & Berliner, 2002; Finn, 2002; Hampel, 2002; Scottish Parliament, 2002), the findings are less certain concerning the advantages of smaller class size at higher grades (Johnson, 2002). Nevertheless, whether one believes that smaller class sizes are beneficial or not, the fact remains that the logistics of instructing larger numbers of students are problematic. This is not a new phenomenon, nor is it a function of whether teachers are "good" or not.

Through the study of ancient history, and especially through Hollywood epics, most people have some knowledge of ancient Rome. Although the Republic, and more frequently the Empire, were often portrayed as militaristic, with individuals prepared to sacrifice their lives at any time, education was an underpinning factor that helped support Rome in its imperialistic aspirations. Much of Rome's military success occurred because of the successful education of its soldiers. Most recruits were organized into centuries of 100 under the command and tutelage of a centurion. Even during the late Roman Republic, optimum class size was a consideration. Among the various skills that recruits had to learn was proper use of the sword and shield. Poor technique would leave one exposed to a possibly fatal blow from an enemy soldier. Although recruits were shown proper techniques by the centurion, incorrect techniques were often practiced by recruits, either through incomplete learning or through not paying attention to what they were doing. While the centurion circulated among the practicing recruits and corrected inappropriate technique whenever it was observed, in many instances, because of the numbers, recruits would repeatedly practice incorrect techniques before being corrected. Often the result was that in battle, when stress levels were particularly high, the swordsmanship employed by the new soldiers would revert to the inappropriate maneuvers practiced most frequently. The consequence of this was often disastrous, both to the individual soldier and to the particular army.

By the final years of the Republic the problem of heavy losses of new soldiers was of such concern that the matter was investigated and solutions sought. One of the first suggestions made was to reduce the size of centuries. Thus instead of one centurion, two individuals might be used, each responsible for 50 recruits. As the number of recruits to supervise would be fewer, it followed that the amount of supervised time received by each individual would increase, thus also reducing the amount of time that incorrect techniques would be practiced. Perhaps not surprisingly, this kind of suggestion

was not received favorably by government, because reducing century size would be an expensive proposition (Vegetius). Then, as now, the government made the tacit recommendation "Work smarter, not harder." Without altering century size, what could be done?

About this time, either an individual or several individuals thought of using technology to improve the teaching of military recruits. The result was the creation of the *quintain*. Although details differed between individual examples, the basic design was consistent. A pole stuck vertically in the ground supported a horizontal pole placed on top of it. The horizontal pole, which was pinned to the top of the vertical pole, was designed to pivot freely. Attached to one end of the horizontal pole was a large burlap sack filled with straw, while the other end supported a counterbalance weight, sometimes with spikes attached (Kuret, 1963). The basic operation of the quintain was simple. A recruit would practice sword technique against the burlap bag using a blunt practice sword. If the technique used was correct, the sack remained relatively stationary. However, if an incorrect technique was used, the sack would pivot away from the recruit, and the counterweight would swing around, most often striking the recruit. This was a clear indication that what was being done was wrong. In most instances the recruit would modify his behavior immediately, thus practicing proper technique most often. In a century, therefore, a centurion could employ several quintains to help recruits practice proper sword techniques. In this manner the centurion was working smarter rather than harder.

A Consul, Publius Rutilius, recognized the method as being superior to previous practice, and he advocated universal adoption of the quintain (Valerius Maximus). Although some Romans saw the utility and advantage of using the quintain, others did not. Some feared that this device would disrupt military training and cause the collapse of a traditional system. Others feared that the quintain might lead to an increased century size, or at the least to a reduction in the number of centurions. Yet another view was that instruction from a quintain was inferior to that provided by a live person, and as a result the quality of instruction would be diminished (Valerius Maximus).

Although experimental research designs were unknown at the time, comparisons between soldiers educated with the quintain and those that were not did occur. Frontinus, describing a general's experience in choosing an army, noted,

Gaius Marius had the opportunity to select his army out of two already in existence, the army which had served under Rutilius, and the other one which had been under Metellus ... He chose the army of Rutilius even though it was smaller, because he thought it to be better trained. (Strategemata, 4.2.2)

It appears that the quintain gained favor extensively, as it eventually became a standard adjunct to direct instruction in Roman armies. The use of the quintain continued into the medieval period when the arrival of guns rendered the quintain and sword warfare largely superfluous (Buck, 1989). The quintain did not, as some feared, replace the centurion, nor did it result in inferior instruction.

Although modern education bears little resemblance to Roman military education, there is a possible parallel with how problems of class size are dealt with. Instead of either continuing with the status quo or arguing for reduced century size only, an adjunct to instruction was used. The quintain was not touted as a replacement for the centurion, and it was not regarded as being the primary means of instruction. Instead, the quintain was viewed largely as a means of assisting both recruits and centurions. Can the experience of the Romans using the quintain as an adjunct to instruction be applied to the issue of class size in contemporary schools? No doubt some would say “absolutely not.” Indeed the point is not to advocate that teachers use quintains. There are nevertheless many appropriate adjuncts to instruction ranging from computer-based programs to various methods of instructional delivery and assistance.

The point is that governments are unlikely to change their position significantly regarding class sizes at the higher grades. If this is the case, then instead of continually trying to change a tradition that seems to have existed since Roman times, is it not wise for educators to work smarter?

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References

- Biddle, B.J., & Berliner, D.C. (2000). Small class size and its effect. *Educational Leadership*, 59(5), 12-24.
- Buck, G.H. (1989). Teaching machines and teaching aids in the ancient world. *McGill Journal of Education*, 24(1), 31-54.
- Finn, J.D. (2002). Small classes in American schools: Research, practice, and politics. *Phi Delta Kappan*, 83, 551-561.
- Frontinus, S.J. Strategemata. In *The strategies and the aqueducts of Rome* (C.E. Bennett Trans. 1925). London: Heinemann.
- Hampel, R.L. (2002). The long road to small schools. *Education Digest*, 67(8) 15-20.
- Johnson, K.A. (2002). The downside to small class policies. *Educational Leadership*, 59(5), 27-29.
- Kuret, N. (1963). *La quintaine des Slovènes de la vallée de la Zilia (Gaital), et son cadre européen*. Ljubljana: Institut za Slovensko Narodopisje, Institutum Ethnographiae Slovenorum.
- Scottish Parliament. (2002). Debate on class size and pupil attainment. *Education Parliamentary Monitor* (February 11), 21-22.
- Valerius Maximus. *Facta et dicta memorabilia* (compiled by C. Kempf, 1854, reprinted 1976). Hildesheim: Georg Olms Verlag.
- Vegetius, F.R. *Epitoma rei militaris* (compiled by C. Lang, 1885, reprinted 1967). Stuttgart: B.G. Tuebner.