



John Hattie and Visible Learning: Holy Grail of Teaching or Latest Edu-business Package?

Introduction

This year's annual conference planned by the Leadership Committee for English Education in Quebec (LCEEQ) presented the research work of John Hattie and the implications for pedagogical practice. The workshops were based on Hattie's model of "Visible Learning" which purports to identify best practices and conditions based on research so that learning done by students can become "visible." Hattie himself presented some of his research results with subsequent sessions on the implications for practice being presented by members of his team.

It is important that teachers know about Hattie's work, the conference and the presentations that were made because the conference was attended by over 900 people from the English education sector, including individuals from school board pedagogical services departments, principals as well as, of course, teachers. Undoubtedly, many of these individuals will be going back to their schools and their offices seeking to implement what was presented at the conference. Consequently, teachers need to be better informed about Hattie's work and to be equipped to challenge ideas that may be presented to them.

Hattie's Work

John Hattie is a New Zealand education researcher and writer who is currently at the University of Melbourne in Australia. The research he has put together over the last 20 years or so has consisted of performing a "synthesis" of meta-analyses of research that has already been done in the field of education in an attempt to find out what factors have the greatest impact on the educational achievement of students. A meta-analysis, simply put, is an overall review of the combined findings of a number of individual research studies that look at the same issue. In essence then, Hattie's "synthesis" is a combination of the results of other previously combined results to come to a presumably more significant conclusion about the larger implication of all the research on a given topic.

The purpose of Hattie's "synthesis" (others use the term "mega-analysis") is to generate a single number that reflects the overall impact of a certain type of intervention or condition on student achievement. He refers to this number as the "effect size" of the intervention or condition. He also asserts that, while most pedagogical practices have a positive effect on learning, certain practices, conditions and interventions have greater impact than others. He further asserts that since the average effect size of all of these is 0.4, practices, conditions and interventions that reach or exceed this threshold, which he refers to as a "hinge point", are the ones that should be favoured and implemented in order to improve student achievement. Some of his conclusions about student achievement that were presented at the conference, and which can be found in his writings, were:

- Feedback to students as well as from students has a large effect;
- Class size has a small effect;

- Subject specialization of teachers has little effect;
- Teacher education programs have little effect;
- Teacher credibility has a large effect;
- Student retention (repeating a grade) has a negative effect.

Conference Presentations

In addition to Hattie, four presenters from his team discussed the topics of meta-cognition, feedback, student voice and data. These presentations were largely designed to further reinforce Hattie's overall philosophy among conference participants; they may have been of interest to many participants and the topics may have been broadly relevant, but at no point was there any opportunity to question Hattie's conclusions or delve more deeply into them. Each presenter engaged in salesmanship of the Visible Learning program. Hattie's conclusions were reiterated time and again, with repeated reminders about the absolute importance of the 0.4 "hinge point", and to accept all the implications for teaching practice as they were presented based on the teaching/learning model developed by Hattie.

Hattie's Methodology and its Problems

Hattie's work is very large in scope; he has "synthesized" the results of over 900 meta-analyses, each of which is an analysis of previous research and a variety of studies in its own right. Hattie posits that this means that he has data reflecting the impact of practices on millions of students, thereby offering a high degree of reliability and validity to his results. However, critiques of his work specifically and of meta-analyses in general should give rise to skepticism of this assertion. For example¹:

- The studies being used in the initial meta-analysis can be quite different from one another. They may examine different questions, so that apples are being compared to oranges, but are being combined anyway. This calls into question what the real value of the effect size is and what effect it is really measuring. This problem is further compounded when the results of different meta-analyses are combined.
- The quality of the different studies and meta-analyses are not examined prior to use. This could mean that the saying "garbage in, garbage out" would apply for some of the studies in an original meta-analysis, or possibly of a meta-analysis itself. These meaningless or inaccurate results could then find their way into Hattie's overall effect size. When the standards of the research that is part of the analysis are poor, unclear, or unknown, the value of the data and the results are undermined.
- Typically, only published studies are used in meta-analyses. This means that unpublished findings, which are often unpublished because they do not yield a desired or favoured result, are excluded. This means that results may be inaccurate.

- Deriving a single effect size calculation from a wide range of studies ignores certain complexities. For example, the effect size for homework is presented as being about 0.29, which would suggest a limited effect for homework in general, according to Hattie. However, the effect size of homework for elementary is 0.15, and for high school it is 0.64; based only on these numbers, one could come to a very different conclusion that homework is of little relevance in elementary school and of great relevance in high school. Other differences are also not reflected in the one number of 0.29. As such, a single number misses a whole set of nuances and deeper questions, even if the number is derived from valid research.
- Defining the variables is difficult in education because factors interact with one another. When effect sizes are used in medicine, for example, to test how well a medication works, what is being studied is clear, such as determining whether patients get better more quickly with one drug as opposed to another. However, when one compares one teaching method to another, what is meant by each method is not necessarily defined in the same way from one study to another nor interpreted in the same way by those implementing the method in their classrooms.
- It is difficult to isolate the variables being analyzed. For example, when one is looking at class size, what is meant by a large class and what is meant by a small class? If “large” classes used in some studies are 22 to 25 students and in other studies it is over 30 students, how has one really isolated what the impact of a large class is?
- Additive effects are not carefully considered.² For example, Hattie states that a teacher’s subject knowledge has little influence on student learning and that teacher training also has little effect. However, a relatively recent study of grade 10 math teachers indicated that while content knowledge and pedagogical content knowledge had lesser effects separately, in combination they actually had a substantial effect on student learning.³ One has to wonder if other such interconnections have been carefully considered, both in the original meta-analyses as well as in Hattie’s work.

In short, an effect size that is calculated by simply averaging the effect sizes of other studies, whether or not these studies are looking at the same variables, were constructed in similar ways, or properly take into account subtleties like combined effects, is going to be misleading. As explained by Higgins and Simpson in their review of Hattie’s Visible Learning,

“ ... (Visible Learning) develops a simple figure, 0.40, above which, it argues, interventions are ‘worth having’ and below which interventions are not ‘educationally significant’. We argue that the process by which this number has been derived has rendered it effectively meaningless.”⁴

Conclusion

There is no doubt that Hattie’s work offers a different way to view educational research. It is also clear that the sheer number of studies that he has included in his research offer a seductive reassurance as to the significance and precision of his results. However, the aura of mathematical and numerical precision that he gives to what works and what does not is seriously misleading; the methodology he applies limits the conclusions that one can draw from his work. Using a single number and, effectively, saying that this number represents some sort of absolute cut-off as to what is a useful intervention reduces educational practices to a simplistic formula: “0.4 or more is good, less than 0.4 is bad”. Education is not a hard science with easily controlled variables; there are many conflicting or overlapping variables and trying to seek a simplistic formula is an exercise in futility. At best, Hattie’s work points to interesting questions to think about and examine more carefully and should be viewed in this way.

It is also important to realize that even if the derivation of the effect size were fully accurate and valid, it represents an average. It does not mean that an intervention that has a low effect size will never work well nor be effective; in certain circumstances, for individual students or groups of students, these interventions may have a significant positive effect. In the end, teachers must be able to carefully judge their own students’ situation.

Long experience in education has shown that educators of all stripes can succumb to their exuberance and get carried away by the perceived promise of the latest “answer” about education and learning. John Hattie and his fellow presenters at the LCEEQ conference promoted their version of the “answer” with effusive enthusiasm. While participants at the conference may have benefited from it or find Hattie’s work interesting, they should be willing to question what is presented in Visible Learning and not take it at face value. The problems with the research indicated above, in conjunction with the blatant promotion of the Visible Learning package by all the presenters at the conference, should spur teachers and others in education to actively engage in critical debate with those who wish to promote Hattie’s ideas.

- 1 Unless otherwise noted, the problems enumerated can be found in Snook et al.
- 2 Higgins and Simpson, page 199.
- 3 Baumert et al.
- 4 Higgins and Simpson, page 199.

References

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