

## CHAPTER 27.

### DIFFERENT INTELLIGENCES OF TEACHERS IN PRIMARY EDUCATION

Jan Kaldewey

#### Introduction

Is there a difference between a Christian academy for primary school teachers and academies with another orientation regarding educational vision and practice?

This question cannot be answered in general terms. Yes, there are differing visions and practices within Christian education, e.g., a more program-oriented approach and direct instruction or a more development-oriented approach and discovery learning, and these are reciprocated outside the field of Christian education.

Considering a Christian inspiration can make a difference in specific choices in structuring the educational process, we examine the case of teacher education at the CHE in Ede. This case is the curriculum developed for the academy for primary school teachers, which is structured on the basis of differences in intelligences or styles of thinking.

To show how the inspiration is effective first a major trend in the vision of Dutch education is outlined. This is the new interest in knowledge (besides skills), in the general level of mastery, and in the development of an enquiring attitude of teachers. The theoretical-enquiring qualities of (prospective) teachers receive greater emphasis in this trend.

Second, the question is posed as to how this new interest in theoretical-enquiring qualities relates to other important teacher qualities, such as practical-pedagogical qualities. Regarded from a Christian perspective, a curriculum can be defended that allows for mutual enrichment through complementary qualities. This approach is based on the idea that different thinking styles serve as an alternative to a focus on single intelligence as expressed in IQ, which corresponds to thinking in terms of superior and inferior qualities.

Finally, the consequences of this vision for the nature of the curriculum of the academy for primary school teachers will be discussed.

### New Trend of Evidence Based Education

Recently, there is a new trend in the field of Dutch primary education. Schools are stimulated to develop evidence-based education, following the prevailing practice of *evidence-based medicine* in clinical studies. In this view, education should not be based merely on practical experience, intuition and ideas that teachers derive from their own education, but also—or perhaps by preference—on research outcomes that illustrate the effectiveness of a given educational method. See e.g., *Themanummer Onderzoek* [Special on research] (2008), and Geerdink, Pool, and Jansen. (2008). Existing research results are too often neglected: there is a so-called gap between theory and practice.

Concerns about the quality of the primary education level, specifically the level of language and mathematics skills, play an important background role relating to the new interest in knowledge and research (KNAW, 2009). Government policy requires more emphasis on (knowledge of) research in the fields of language and mathematics which is expected to result in improved education and learning outcomes. This is held to be imperative for maintaining a prominent position as a knowledge-based society and a knowledge-based economy.

These politically supported developments require a different teacher profile, one of the major concerns for a curriculum (Ministerie OCW, 2008). The new teacher is required to have an interest in educational research, should be capable of reading research publications and be able to draw conclusions from these for practice, and, moreover, he/she should be a competent planner and practical researcher.

Indicative is that the academic output by students on bachelor level at academies for primary school teachers will be measured using high standards regarding the research component i.e. emphasizing correct literature references, increased reference to research publications, and a higher level of mastery in using research methods.

Following this trend, in addition to the regular professional primary school teacher training route all prospective teachers followed till then, from 2009 experiments have started with a combined professional and university route, where pre-selected students can obtain two degrees: a university bachelor and a professional bachelor. Students following this curriculum are expected to fulfill a leading role in innovations in primary education, or to take up a role as (for example) coordinator of

mathematics education.

In summary, we see in Dutch higher education the rise of a research attitude whereby a higher educational level is promoted, specifically relating to language and mathematics education. As a matter of fact, this new emphasis is not only found in courses for teachers in primary education, but throughout the entire higher vocational education domain. However, the reported trends are stronger in the educational field and we see that the academies for teachers are more than before severely penalized for failure to comply with these requirements following government evaluations.

### Critical Remarks

On a superficial level, little can be argued against the legitimacy of imposing higher standards. Exhaustive research is indeed a valuable and necessary addition to practical intuitions. A fortification of research in the field of higher vocational education will certainly aid in bridging the gap between theory and practice, and a mastery of language and mathematics are key skills for teachers.

At a deeper level, we must make critical remarks. In short, this concerns the implicit inclination to put forward one type of intelligence or style of thinking as the preferred one. The point in question concerns not only what is proposed by government, but also what is omitted.

Again, we note that positive remarks can be made about the need for developing an enquiring attitude, but the same could be said for, e.g., developing a philosophical attitude—being able to think about meaning, to uncover presuppositions or to reason from different perspectives. Then again, there are arguments for putting forward an aesthetic attitude—the development of good taste, imaginative power and developing sensitivity towards aesthetics or the rich palette of emotional nuances. An enterprising attitude could also be advanced—being able to organize by gaining awareness regarding political relations, and by developing practical skills. In short, the type of intelligence required seems to be one-sided. The issue to be raised is not whether it is desirable to develop an enquiring attitude, but instead whether it is more desirable to develop the research attitude than, e.g., the philosophical, aesthetic or enterprising attitude. On a critical note, the attention demanded for, for example, skills in language and mathematics unintentionally seems to be reduced to a narrow focusing on correct spelling and grammar. The fact that language comprises multiple facets such as the ability to express oneself orally or the ability to write a legible, personally colored or literary text, may by

this reduction fade to the background.

Similarly for mathematics, computations consist of more than just basic operations, and although there has been deterioration (in Dutch education) regarding *operations on big numbers and comma numbers*, there is an improvement in aspects demanding insight such as *the meaning of numbers and relations between numbers and estimating numbers* (KNAW, 2009).

As is stated before, these remarks do not imply that there is no reason to invest renewed energy into emphasizing the need for higher research skills or into renewal of language and mathematics education just as there could be emphasis on other skills at another moment. A well-founded reason for renewed attention towards developing a knowledge-oriented and enquiring attitude is certainly that this type of thinking has been neglected over the past years in Dutch education and that re-establishment is desired at this point in time.

The point is, how integral must the various intelligences be developed? How can we prevent a situation in which one sidedness is changed for another, and where valuable non-intellectual qualities are rendered useless in the years to come?

### Multiple Intelligences

As described above, one type of thinking or intelligence seems to be put forward as the most preferred style, namely a logical-analytic way of thinking, which is focused on facts (evidence), precision and correct logical reasoning. An alternative for this unexpected and forceful promotion of the intellectual *habitus* could be a broader approach where there is equality in valuation of different types of thinking or intelligences each representing a unique quality.

The concept "thinking styles" or "multiple intelligences" has a long tradition. Already in the sixteenth century, the Spanish physician Juan Huarte wrote a treatise about the different *ingenios* that are required for the different sciences (Huarte Navarro, J., 1969[1594]). He differentiated between *memory*, *comprehension* and *imagination* and acknowledged wholeheartedly that an individual could excel in all these faculties, but states that these cases are more likely the exception than the rule. In most cases, one of the faculties is more strongly developed than another, and this should be taken into account. Huarte already provided the claim that, e.g., the subject Grammar places a large demand on memory while Logic requires comprehension and Rhetoric demands a developed imagi-

nation. Here we see arising the need for an integral approach.

The concept of intelligence as we use it stems from the period of modernization during which science; logics, rationality and technology received special status while it is common knowledge that in many domains a high IQ or cognitive intelligence is not a condition for excellence.

The superior position of cognitive intelligence is expressed in facets of how the Dutch education system is organized. The Dutch secondary education system has been hierarchically organized, ranging from practical-vocational education to gymnasium with a level description in terms of IQ-values: e.g., for *mapo* (part of secondary vocational education) minimum-value 100, for *havo* (general secondary education) minimum-value 108, for *vwo* (preparatory scientific education) minimum-value 116.

So it is indicative of the traditional Dutch system that a single type of intelligence determines the entire educational structure, and that other types of intelligence (like for example aesthetical intelligence) are automatically assigned to inferior positions.

In the twentieth century, several leading American educational psychologists also reacted to such a special status attributed to cognitive IQ. Howard Gardner gained influence with his theory of *multiple intelligences*, consisting of amongst others, the logical-mathematical, verbal-linguistic, bodily-kinesthetic, visual-spatial and social (interpersonal) intelligences (Gardner, 1983). Robert Sternberg also described IQ-intelligence as being part of a larger set of intelligences, namely the analytical intelligence, the creative and the practical intelligence (Sternberg, 1985).

In the next section, we question whether the anthropological qualities of the assumed superiority of cognitive intelligence meet our standards of Christian education.

### Christian Inspiration

We rephrase our question as follows: To what extent does an approach that is focused on talent or diversity of intelligences fit a Christian tradition?

First, we comment on some Bible passages that are related to this theme. Then we mention what classical and modern Christian writers remark on talents and cognitive intelligence. Finally, we make a connection with the concept of "integral learning."

We note that inspiration for a talent and diversity focused approach can be found in several well-known Bible passages. One of these is the

"parable of the talents" (Matthew 24:14–30). A key point in this passage is a call not to bury your talents (originally a monetary unit), but to exploit them. In Christian practice, this is translated into making use of one's talents that may be found across different domains: arts, science, politics, education and so on. The implicit meaning is to aim for various skill levels in various vocations.

Another well-known passage illustrates the different parts, such as the eye and the ear; each has their purpose and cannot function without each other (1 Corinthians 12). In Christian practice, this leads to attention for the complementing nature of different qualities where neither (e.g., intellectual) is superior to the other. We characterize this ideal as follows: We must not put talents in a hierarchy of talents of lesser value (e.g., practical talent) and more value (e.g., intellectual talent), but we have to judge talents in their own value, with strong and weak sides depending on the context wherein we function.

Of course, some cautiousness is needed in interpreting these biblical passages. People might say that these passages are in the first place aimed at functioning in the community of believers. Perhaps the talents have to be limited to "ethical talents," like helping others, praying or biblical teaching. This may be true, but in our society, the Christian view is that families and churches are "places of exercise." It is there that we can train in using our talents and complementing others, with the aim to put this into practice in the civil society. Therefore, a broader interpretation seems legitimated.

Is this interest in talent and/or diversity of intelligences reciprocated in Christian pedagogical-philosophical science?

A classical work in the Protestant, specifically Calvinistic tradition is Herman Bavinck's *Paedagogische beginselen* [Pedagogic principles] (Bavinck, 1917). It is interesting that the period during which Bavinck writes his book, the first decennia of the twentieth century, shows parallels with current times in its attention to the individual child as promoted by the so-called Reform-pedagogues. Bavinck sympathizes with this movement to a certain extent, "In so far as [Reform Education] is moved by the destiny of many neglected children, education demands that attention be given to knowledge regarding child development and its characteristics, where focus is more on 'Bildung' and less on intellectual development, creating ample opportunity for the child's initiative . . . it can claim our sympathy" (Bavinck, 1917, p. 124).

The other, formerly leading, Protestant-Calvinistic pedagogue Jan Waterink mentions talent diversity in his *Theorie der opvoeding* [Theory

of nurture] (Waterink, 1958) only in a general sense and in similar terms, as does Bavinck. Waterink departs from an organic view of the child stating, "We educate children with all their talents and powers in all layers of existence, 'if indeed we should speak of layers'" (Waterink, 1958, p. 110).

Neither author expands on the possible consequences that attention directed towards talent diversity may have on education. Nevertheless, it is clear that they support education that does not promote only intellectual talent, but has an eye for talents in different domains.

As to the valuation of the intellect in relation to other qualities, the Christian-philosopher Nicholas Wolterstorff offers an interesting view. Wolterstorff sketches two different positions within the Christian view on knowledge, intellect, and science and pleads for a third position (Wolterstorff, 1993).

The first position is that of Thomas of Aquinas. In the *Summa Theologica*, Thomas poses that the ultimate happiness consists of unification with God. This unification is an act, indeed the highest activity of man, oriented towards the highest object. Therefore, the highest faculty of man is required, which is reason, more specifically the contemplative reason and not practical reason. Wolterstorff characterizes the Thomistic view as intellectual elitism. Thomas seems to have no regard for the fact that not everyone can become a scientist, be it through lack of time, lack of talent or interest. In this view, an individual departs from inferior goals and activities upon entering the scientific realm.

The second position Wolterstorff sketches is that of the traditional Protestant, specifically Calvinistic tradition. "Culture formation" plays an important role in this tradition, which entails the mandate to develop the world and civilize it. Practicing science is one of the ways to contribute to culture formation, but not the only one. Science, theorizing and research are not elevated above agriculture, producing furniture or politics. In this vein, the elitist Thomistic stance is abandoned.

Wolterstorff notes that the emphasis on culture formation within the scientific domain has led to single-sided attention regarding pure science at the expense of serving, practically oriented science. He pleads for science in service of *shalom*, living at peace with God, oneself, fellow human beings and nature. In this context, both the value of knowledge as pursued by pure science, and results and application of practice-oriented science are justified.

Therefore, Wolterstorff, like Bavinck and Waterink, notes that intellectual activities are only one way of developing our environment, and that other activities are of equal value.

Finally one could ask if there is a connection between the here proposed talent diversity approach and the concept of "integral learning" (Hegeman et al., 2004).

Integral learning is aimed at finding a third way as an alternative for a traditional realistic approach (the idea that there is a world outside ourselves that we can know by using science and reason) and a constructivist approach (we construct reality by communicating with each other). Important concepts in integral learning are *context* (being part of a community), *role* (professional attitude, responsibility) and *person* (characterized by a habitus of authenticity). From a perspective of talent diversity and different intelligences, one could state that perhaps some people are more attracted by a realistic approach and others by a constructivist approach. So these approaches are probably not only based on world-views but equally on personal preferences that can even be influenced by ones dominating type of intelligence. Developing as an authentic person could mean that people are conscious of their own preferences and the consequences for one's way of acting in a profession, with respect for other preferences.

When we return to the question with which we started, "To what extent does an approach that is focused on talent or diversity of intelligences fit a Christian tradition?" the answer can be positive. Although talent and intelligence diversity is not a theme that is thoroughly worked out by Christian authors, there is a remarkable congruency regarding the role of reason and intellect. Bavinck sympathizes with the idea of "Bildung" instead of a focus on intellectual development, Waterink pleads for an organic view and education of all talents and powers, Wolterstorff states that theorizing and research are not elevated above other activities, and in integral learning the realistic approach, guided by science and reason is seen as one side of the picture.

Curriculum of the Academy for Primary School Teachers

Does an approach that makes a stand regarding talent or intelligence diversity result in a difference where practical application of a curriculum is concerned? Does a Christian academy make a difference in this respect? Are there consequences that bear on the structure of a curriculum?

Students at the academy for teachers in primary education at the CHE come from a range of different secondary schools—the more practically oriented MBO (secondary vocational education), the more theoretically oriented VWO (preparatory scientific education) and the HAVO (general secondary education) which lies somewhere between

the two. There is a general tendency to perceive differences between students from different backgrounds mainly as resulting from differences in cognitive intelligence. VWO-students are seen as smarter than HAVO-students and these as smarter than MBO-students.

Can differences between these students also be characterized in terms of different intelligences or styles of thinking? This question has led to research I have undertaken among these different groups. A small-scale study on first-year students showed that in contrasting preference for practical thinking to preference for system thinking (orientation on relations and the whole picture), there is little difference between the different streams (see Table 1)—all three groups prefer practical thinking. However, there is a difference regarding preference for picture thinking versus preference for concept thinking (logical-analytical thinking): MBO-students turned out to be relatively stronger picture thinkers, VWO-students showed to be relatively stronger concept thinkers and the HAVO-students occupied a middle position in both cases (Kaldewey, 2007).

Table 1: preparatory education and thinking styles, novice students Education Academy 2008/2009 (scores converted to 100-points scale). MBO: Secondary, lower vocational training. Havo: Secondary education leading to entry of higher vocational training. VWO: Secondary education leading to university academic and research training.

|             | Picture thinking | Practice thinking | Concept thinking | System thinking |
|-------------|------------------|-------------------|------------------|-----------------|
| MBO (N=26)  | 67*              | 64                | 33*              | 36              |
| Havo (N=36) | 58               | 63                | 42               | 37              |
| VWO (N=25)  | 51*              | 60                | 49*              | 40              |

\* Difference mbo-vwo significant (p<.001). N.B.: the scores on picture and concept thinking, and on practice and system thinking are mutually dependent (together 100 percent).

Thus, differences between students not only refer to differences in IQ, but also to different ways of thinking and problem solving.

### Discussion

What do these different qualities imply with respect to the curriculum? How should these differences be handled?

In Table 2, different qualities that are assumed to be associated with different intelligences are outlined.

Table 2—Different qualities

| Theoretical-enquiring qualities associated with conceptual thinking                                                                                                                                                                                                                                    | Practical-pedagogical qualities associated with picture thinking                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Contemporaneous professional knowledge</li> <li>- Being able to carry out research</li> <li>- Maintaining an overview</li> <li>- Developing an analytical attitude</li> <li>- Being able to contribute to the development of new ideas and visions</li> </ul> | <ul style="list-style-type: none"> <li>- Translating vision and models into practice</li> <li>- Experimenting with new methods</li> <li>- Suggesting ideas based on practical experience</li> <li>- Contributing to a sound pedagogical climate</li> <li>- Realizing appropriate internal and external communication</li> </ul> |

In the initial phase of the curriculum a sound basic level of functioning in both areas of Table 2 is aspired. This means (cf. Table 1) that during the initial phase extra attention should be paid towards developing the theoretical side for the MBO-intake, while the VWO-intake will likely require additional attention regarding the practical-pedagogical side. In this respect, the curriculum of the teachers college, the CHE in Ede differs from the recently established university course for teachers in primary education, which emphasizes intellectual development of VWO-intake from the start of the curriculum. This is probably based on the idea that it should be possible to acquire the practical pedagogical side of the profession without additional effort for students with a relatively high IQ.

During the second phase of the curriculum, theoretical inquiring or practical pedagogical specialization is possible. In this phase, the comple-

mentarity of the different qualities is stressed.

With this approach, the academy intends to prevent the emergence of superior and inferior positions in primary school teams. It is even possible (but this requires empirical testing) that this will aid in bridging the gap between theory and practice more effectively when compared to the implicit promotion of one type of intelligence while neglecting others.

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