In his article, *Relational Understanding and Instrumental Understanding*, Richard R. Skemp (1976) aims to “argue[s] the merits of both points of view as clearly and fairly as possible” (p. 23). Skemp contends that to even begin to comprehend these two different types of development, one should first have a clear understanding of the term *development* at its most basic form. The very idea of development is likened to that of a French term *Faux Amis*, an expression used to describe words which are the same or very similar, yet have two entirely separate meanings (p. 20). Skemp introduces and differentiates between the two types of understanding which coexist in teaching, known as, “Relational” and “Instrumental” (p. 20). Skemp’s in-depth article analyses the implications for the development of numeracy for students. Furthermore, he discusses the implications when the teaching results in instrumental understanding, that is, learning “fixed plans” (p. 25) or “rules without reason” (p. 20) and also when the teaching results in relational understanding, rather “knowing what to do and why” (p. 23).

The text introduces readers to the notion of instrumental understanding as a method of learning mathematics, a concept which Skemp himself was not certain should be known as understanding at all (Skemp, 1976). Skemp continues to further his audiences’ understanding of these concepts through explaining this understanding as the custody of a rule and how to use it (Skemp, 1976). A prime example of this in the mathematics classroom is learning multiplication tables by rote. The benefit of this type of understanding is twofold. This widespread approach to understanding leads to one major downfall; that being students having only one outlook on solving a solution which students may not be able to apply to all situations. “Being able to use a rule is not good enough” (p. 22) Skemp contends. It is suggested that through the method of finding a rule and applying it to most situations children are left with a feeling of accomplishment and a restoration of self-assurance upon students completing a set of answers. However, according to Skemp, a clear set of answers and the application of a rule or theory is not entirely what constitutes a good mathematician (Skemp, p. 23). These benefits are heavily overruled by the fact that these obvious, instant rewards are seldom long term and are appropriate only in a limited context. It appears that most students who learn instrumentally would have limited awareness of the overall construct and would need a set of instructions and to be guided at each “choice point” (p. 25) thus leading to students not enjoying the subject and ultimately giving up.
While some topics lend themselves more towards an instrumental approach, minus take minus equals plus, is it generally believed that in order to gain a higher level, conceptual, shamanic knowledge of mathematics, teachers must focus upon a more relational approach to understanding.

Where instrumental understanding is the clear and simple application of a rule to a problem, relational understanding becomes a more complex, higher level rate of understanding; it is rather, "knowing what to do and why" (Skemp, 1976, p.23). This conceptual structure of learning involves helping the student to develop a network of ideas in order for them to gain a "meaningful" (p. 24) relationship with the mathematics that they are undertaking. It is because of these vast links of knowledge that students are able to apply what they have learned to future tasks, thus extending their understanding by developing upon these organic webs of knowledge. From the students' perspective, Skemp defines relational understanding as "intrinsically pleasurable" and contends that students will continue with tasks voluntarily (p.23). This seems to be the dominant variance between the two types of understanding and critically the most important in student development. Although relational understanding is easier to remember in the long term, (p.23) it is sometimes seen as a long process and often as too difficult (p.24). It is these qualities which need to be thought about in order for a teacher to make the critical decision of which method of understanding they will strive to achieve within their classroom.

A teacher may choose to focus on developing an instrumental understanding of mathematics for an initial approach to a topic. They may choose to teach multiplication tables by rote, thus using instrumental learning yet later on develop a higher level approach to solving the problem and mature the complexity levels of the students understanding. As Skemp (1976) explains, teaching with a relational understanding involves more content than simply a rule alone (p.24), however when taking a relational approach there will be a vast range of other uses of acquired knowledge thus resulting in a holistic understanding of what is happening and why this is occurring. A focus on relational understanding in the classroom will ultimately use many alternative explanations, provide a context for mathematics and make the connection between mathematics and real-life experiences (p.23-24).
References


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