

Forms of Knowledge and its Organisation in Schools

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ABSTRACT

This paper analyses the forms of knowledge and its organisation in schools. Knowledge is one of the most important assets of a school organisation, and is critical for school sustainability. Sallis and Jones (2002) defined knowledge as “information in use, and the interaction of information with the human mind, which gives it meaning and purpose.” Knowledge is constructed through an “accumulation of facts, procedural rules or heuristics through our daily experience and study”. It also involves the intelligence to acquire and apply what one has understood through learning and experience. Knowledge is derived from information but it is richer and more meaningful than information. It includes familiarity, awareness and understanding gained through experience or study, and results from making comparisons, identifying consequences, and making connections. Distinctions are often made between data, information, knowledge and wisdom. Knowledge is information combined with experience, context, interpretation and reflection. In organisations, knowledge often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices and norms. Knowledge could also be defined as a form of capital, as Stewart (1997) states that transformation of information into knowledge is a critical step in value creation, which determines what kind of advantage an enterprise has in competition.

Key Words: Knowledge, Teacher, Learner, Education, Curriculum, Pedagogy

Introduction

Knowledge is the understanding that people develop as they react to and use information, either individually or as an organisation. **Explicit knowledge** refers to knowledge that is transmittable in formal, systematic language which is more precisely and formally articulated, and removed from the original context of its creation or use. **Tacit knowledge** has a personal quality, which makes it hard to formalise and communicate. Tacit knowledge is subconsciously understood and applied, developed from direct experience and action, and usually communicated through informal conversation and shared experience.

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Can we categorise Knowledge? On what basis?

The starting point for this discussion is usually based on Plato's definition of knowledge, which is: "justified true belief". This of course presents the problem of what 'true' means.

What justifies our belief that something is true, then? Drawing on the work by other philosophers, Bertrand Russell argued that knowledge fell into two categories: either knowledge by acquaintance, or, knowledge by description.

- **Knowledge by acquaintance** is knowledge based on personal experience. Examples of this sort of knowledge could be places we have visited, books we have read, and people we have met and spoken to.
- **Knowledge by description**, on the other hand, is knowledge that we have not acquired by direct experience. Examples include places that we have only seen photos of, books we have just read reviews of, and people we only know through other people.

Traditional epistemological way of dividing up knowledge

In university courses devoted to epistemology, knowledge is often divided up into knowing that and knowing how knowledge. Knowing that is anything based on facts or opinions – anything that can be said to be either true or not true. Knowing how is **skill-based knowledge**, or things we know how to do, like playing a sport, programming a computer, painting a picture, and so on. This is not really the type of knowledge we are going to be looking at during this course.

The Empirical/Rational way of dividing up knowledge

Imagine this hypothetical scenario. Whilst travelling in South India with a friend, you meet another tourist in a hotel, and exchange stories. He tells you about the Bangalore to Calicut night road journey. He tells you that he travelled across this route, and he was attacked by elephants on two occasions, losing most of his stuff. Fortunately, he managed to escape. He tells you that it should on no account be attempted, because it is extremely unsafe.

You and your friend were planning to travel to Calicut from Bangalore, but on hearing this story, you have decided to change your route. Clearly, it is far too dangerous to be attempted, so it would be much more advisable to catch an aeroplane. However, your friend doubts the story, and wants to experience the elephants for himself. He does not like to believe in something that he has not experienced for himself, and for that reason refuses to change his plan.

For you, the story told by the tourist, perhaps confirming stories that you have already heard about the region, makes you conclude that it would be dangerous to travel there during night. Your friend, however, refuses to make any decision about the holiday destination until he has seen the situation for himself. He needs to experience things for himself, and see them through his own eyes.

In short, your friend and you have *two different approaches to reasoning*. You build up a picture of the world by using *second hand knowledge* that fits in with what you already know. This is known as *rationalism*. Your friend bases his knowledge only on the things that he witnesses and experiences *first hand*. This is known as *empiricism*.

The line between these two 'schools of thought' can sometimes be hazy, and obviously

there are few people who can be described as either 100% rational or 100% empirical. Most of us use both ways to acquire and apply knowledge. But they are quite a useful way of dividing up knowledge, and both have a long philosophical history, which are worth exploring a little.

Rationalism

Rationalism, in its purest sense, is a belief that all knowledge comes to us through our intellect and our powers of reason. We cannot trust knowledge that comes to us through our senses, because our senses are unreliable. Rationalism can be traced back as far as the Greek philosophers, with its founding fathers arguably Socrates and Plato.

Socrates and Plato believed that our senses only allow us to view the physical world, which to them was far less important than the internal world of thoughts, feeling, and emotions – in other words, our souls. It is only by knowing your soul that you can know yourself, but for this you have to go beyond conscious knowledge.

Empiricism, also, can be traced back to the Greeks. It is based on the idea that people's minds begin like a 'blank slate' – or *tabula rasa* – on which experience is written, to create a picture of the world and how it works. How full this picture is depends on how much experience we gain, and how much we see for ourselves. The person who first expressed the idea that the mind was a *tabula rasa* was Aristotle, who was actually Plato's pupil.

Again, there is a more modern philosopher who is linked to this school of thought. John Locke adopted the idea of the *tabula rasa*, although by the time he wrote, things had moved on a bit, so he termed it as a blank sheet instead. He argued that it was formed by the result of all our experience, which itself can be divided into two: *sensations* and *reflection*.

Clearly the second of these is partly based on reason, so Locke was not quite so radical as Descartes. But for Locke, sensations were what we took in with the senses, so he gave much more importance to the physical world. His ideas were built on further by famous British philosophers, such as David Hume.

The two key differences between these two positions i.e. the *rational* and the *empirical*, is that the former is based much more on reason, and it assumes that we are born with innate ideas that are beyond our consciousness, and we need to gain access to those ideas in order to know ourselves properly. Empiricism, on the other hand, relies much more on the *senses*, and how those senses help us to construct a view of the world on our empty minds that we begin with when we are born.

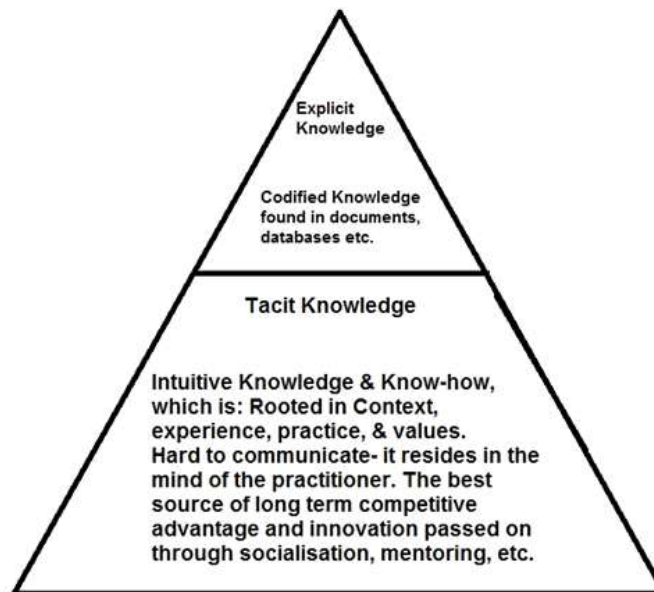
What forms of Knowledge are included in School Education?

Understanding the different forms that knowledge can exist in, and thereby being able to distinguish between various types of knowledge, is an essential step for Knowledge Management. For example, it should be fairly evident that the knowledge captured in a document would need to be managed in a totally different way than that gathered over the years by an expert craftsman.

Over the centuries many attempts have been made to classify knowledge, and different fields have focused on different dimensions. This has resulted in numerous classifications and distinctions based in philosophy and even religion.

Knowledge Management and organisational learning theory almost always take root in the interaction and relationship between these two types of knowledge. This concept has been introduced and developed by Nonaka in the 1994 and remains a theoretical cornerstone of this discipline. Botha (2008) point out that tacit and explicit knowledge should be seen as a spectrum rather than as definitive points. Therefore in practice, all knowledge is a mixture of tacit and explicit elements rather than being one or the other. However, in order to understand knowledge, it is important to define these theoretical opposites.

Some researchers make a further distinction and talk of **embedded knowledge**. This way, one differentiates between knowledge embodied in people and that embedded in processes, organizational culture, routines, etc. Gamble and Blackwell (2001) use a scale consisting of represented-embodied-embedded knowledge, where the first two closely match the explicit-tacit. Given below is an overview of these categories:-



- **Explicit Knowledge:** This type of knowledge is formalized and codified, and is sometimes referred to as know-what. It is therefore fairly easy to identify, store, and retrieve. This is the type of knowledge most easily handled by teachers, which are very effective at facilitating the storage, retrieval, and modification of documents and texts. From a managerial perspective, the greatest challenge with explicit knowledge is similar to information. It involves ensuring that people have access to what they need; that important knowledge is stored; and that the knowledge is reviewed, updated, or discarded. Explicit knowledge is found in: databases, memos, notes, documents, etc.
- **Tacit Knowledge:** It is sometimes referred to as know-how and refers to intuitive, hard to define knowledge that is largely experience based. Because of this, tacit knowledge is often context dependent and personal in nature. It is hard to communicate and deeply

rooted in action, commitment, and involvement. Tacit knowledge is also regarded as being the most valuable source of knowledge, and the most likely to lead to breakthroughs in the organization. The lack of focus on tacit knowledge directly to the reduced capability for innovation and sustained competitiveness. Tacit knowledge is found in: the minds of human stakeholders. It includes cultural beliefs, values, attitudes, mental models, etc. as well as skills, capabilities and expertise.

- **Embedded Knowledge:** Embedded knowledge refers to the knowledge that is locked in processes, products, culture, routines, artefacts or structures. Knowledge is embedded either formally, such as through a management initiative to formalize a certain beneficial routine, or informally as the organization uses and applies the other two knowledge types. The challenges in managing embedded knowledge vary considerably and will often differ from embodied tacit knowledge. Culture and routines can be both difficult to understand and hard to change. Formalized routines on the other hand may be easier to implement and management can actively try to embed the fruits of lessons learned directly into procedures, routines, and products. Embedded knowledge is found in: rules, processes, manuals, organizational culture, codes of conduct, ethics, products, etc. It is important to note, that while embedded knowledge can exist in explicit sources (i.e. a rule can be written in a manual), the knowledge itself is not explicit, i.e. it is not immediately apparent why doing something this way is beneficial to the organization.

In order to build skills, it is important that we know the different types of knowledge that exist in education. Viz.,

- **Procedural knowledge:** Information that is needed to accomplish certain tasks and participate in certain activities is considered to be procedural knowledge. In education, this is often generalized as a group of specific strategies and skills.
- **Conceptual knowledge:** When knowledge is based on concepts that drive factual pieces of information from the world around us, it is called conceptual knowledge and focuses on regrouping big understandings and corresponding relationships among them. Conceptual knowledge highlights connections between the concepts themselves. This type of knowledge can only be acquired through purposeful and reflective learning.

In order to progress through the levels of integrations in the curriculum, teachers must become proficient in articulating learning objectives based on conceptual knowledge, as well as being explicit in their teaching of the procedural knowledge. Understanding the different types of knowledge in education is the first step in this process.

On what basis are Knowledge categories selected in School Education?

All curricula emerge from ideas about what should be taught and learned, and how such teaching and learning might best be undertaken and then certified. As a result the fundamental question lying behind the prescription and development of all curricula is often seen as “What knowledge is of most worth?”—because it is the knowledge that is of most worth that education should, seemingly, reflect. In its ideological or philosophical aspect, much curricular thought seeks

to articulate reasoned starting points for one or another form of curriculum. Such work can accept the framework of contemporary understanding of the scope and nature of education and schooling. It can be critical, seeking to articulate the hidden assumptions around such categories as race, gender, and class that have driven, and drive, schooling in inappropriate, even morally wrong, directions.

However, looked at more analytically, the curriculum of the school reflects layered cultural understandings of what is considered necessary for young people to know or experience if they are to take their place in the social and cultural order. Thus, as the central component of a pervasive modern institution, the curriculum is necessarily a part of all of the sociological and cultural ambiguities within societies. As such, the scope and nature of the curriculum are viewed as critically important for teachers, parents, cultural critics, interest groups, and the employers of the graduates of the school. As the curriculum as an idea is seen through the eyes of all such groups, it becomes a mirror that reflects different visions of the society and culture, and the tensions within the society around, say, the proper nature of the work of schooling and/or status-attainment and employment possibilities. As a result inevitable and unresolved differences of viewpoint characteristically surface around all discussions of the curriculum as a symbol of both a normative order for education and of the quality and character of what schools are understood as doing.

For these reasons the history of curriculum thinking and practice is marked, on the one hand, by popular and professional conflict and debate about what the curriculum should be and how teaching should be undertaken and, on the other hand, by rationalization of the good and/or bad consequences of one or another curriculum. What, for example, should the curriculum that is most appropriate for young people should be based on;

- The needs of the economy for human resources
- National or international ideals
- The need for societal and cultural change or preservation
- Ameliorating pervasive distinctions of gender and race
- The set of perennially “essential” and fundamental forms of knowledge and ways of thinking
- The forms of a life that is most worth living

As a result of the competition between such starting points, there is political, cultural, and policy conflict around what should be authoritatively prescribed in curricula, how teaching should be undertaken, and how schooling should be organized.

Educational Essentialism

Educational essentialism believe that children should learn the traditional basic subjects thoroughly. In this philosophical school of thought, the aim is to instil students with the “essentials” of academic knowledge, enacting a back-to-basics approach. Essentialism ensures that the accumulated wisdom of our civilization as taught in the traditional academic disciplines is passed on from teacher to student. Such disciplines might include Reading, Writing, Literature, Foreign Languages, History, Mathematics, Science, Art, and Music. Moreover, this traditional approach

is meant to train the mind, promote reasoning, and ensure a common culture.

Progressive Education

Progressive Education is a pedagogical movement that began in the late nineteenth century; it has persisted in various forms to the present. The term progressive was engaged to distinguish this education from the traditional Euro-American curricula of the 19th century, which was rooted in classical preparation for the university and strongly differentiated by social class. By contrast, progressive education finds its roots in present experience. Most progressive education programs have the following qualities in common:

- Emphasis on learning by doing – hands-on projects, expeditionary learning, experiential learning
- Integrated curriculum focused on thematic units
- Integration of entrepreneurship into education
- Strong emphasis on problem solving and critical thinking
- Group work and development of social skills
- Understanding and action as the goals of learning as opposed to rote knowledge
- Collaborative and cooperative learning projects
- Education for social responsibility and democracy
- Highly personalized education accounting for each individual's personal goals
- Integration of community service and service learning projects into the daily curriculum
- Selection of subject content by looking forward to ask what skills will be needed in future society
- De-emphasis on textbooks in favour of varied learning resources
- Emphasis on lifelong learning and social skills
- Assessment by evaluation of child's projects and productions

Progressive education can be traced back to the works of *John Locke* and *Jean-Jacques Rousseau*, both of whom are known as forerunners of ideas that would be developed by theorists such as Dewey. Locke believed that “truth and knowledge arise out of observation and experience rather than manipulation of accepted or given ideas”. He further discussed the need for children to have concrete experiences in order to learn. Rousseau deepened this line of thinking in *Emile*, where he argued that subordination of students to teachers and memorization of facts would not lead to an education. Dewey felt that as education is a social construct, it is therefore a part of society and should reflect the community. “Education is the process of living and is not meant to be the preparation of future living,” (Dewey, 1897), so school must represent the present life. As such, parts of the student's home life (such as moral and ethical education) should take part in the schooling process. The teacher is a part of this, not as an authoritative figure, but as a member of the community who is there to assist the student.

Domains of Knowledge for Teaching

Teaching is a complex act, requiring many kinds of knowledge. Some of this knowledge is general and fairly enduring - such as knowledge of subject matter content or of general pedagogical

principles; some is more specific and transient - such as knowledge of the particular students being taught and what has taken place in a particular class. Various systems for describing the knowledge needed for teaching have been developed with varying emphases and purposes. With any set of categories or domains of knowledge, it is important to keep in mind that these systems are used to bring conceptual order to knowledge that is in reality complex and interrelated. The various categories of knowledge are not discrete entities, and the boundaries between domains are vague at best. With these cautions in mind, the following set of categories of teacher knowledge is loosely:

- Knowledge of subject matter content
- Knowledge of general pedagogical principles and strategies
- Knowledge of learners, their characteristics, and how they learn
- Knowledge of educational contexts
- Knowledge of educational goals, purposes, and values

Because they are central to the daily work of teachers, general pedagogical knowledge, knowledge about learners, and knowledge of subject matter have been the focus of considerable research and scholarly discourse.

General pedagogical knowledge/knowledge about learners

These closely related categories of teacher knowledge include knowledge about teaching, learning, and learners that is not specific to the teaching of particular subject matter content. One large component of this domain is knowledge of classroom management - knowledge of how to keep groups of students engaged with various classroom tasks. Teachers must have repertoires of routines and strategies for establishing classroom procedures, organizing classroom events, keeping activities on track, and reacting to student misbehaviour. Teachers also draw upon knowledge of instructional strategies for arranging classroom environments and conducting lessons to promote student learning. Experienced teachers have repertoires of strategies and routines for conducting lessons, keeping them running smoothly, and promoting student engagement.

Content knowledge

Obviously, teachers must know something about the content they teach. In drawing attention to the need for more attention to the role of content knowledge in teaching, Shulman (1986) distinguished three kinds of content knowledge: *Subject matter content knowledge*, *Pedagogical content knowledge*, and *Curricular knowledge*. Subject matter content knowledge is what a content specialist knows, for example what a mathematician knows about mathematics. Pedagogical content knowledge is specialized knowledge needed for teaching the subject, such as understanding how key ideas in mathematics are likely to be misunderstood by learners, and multiple ways of representing important ideas in the domain. Curricular knowledge is knowledge of materials and resources for teaching particular content, including how subject matter content is structured and sequenced in different materials.

Nature and Form of Teacher Knowledge

A potential danger in describing various categories of knowledge for teaching is coming to

think of teachers' knowledge itself as organized into abstract, discrete categories. In fact, what teachers know is complexly intertwined with other knowledge and beliefs and with the specific contexts in which teachers work. Numerous scholars have posed constructs to try to capture the complex contextualized nature of teachers' knowledge. Some researchers have argued that teachers' personalities and life experiences play a major role in shaping the kind of knowledge they develop about teaching, calling this knowledge "personal practical knowledge." In 1987 Kathy Carter and Walter Doyle argued that much of what experienced teachers know is "event-structured knowledge" – knowledge organized around the activities and events they have experienced in classrooms. Others have argued for the importance of articulating the "craft knowledge" of teaching – the implicit theories, skills, and ways of perceiving that teachers develop through their work.

What teachers know and how they know it are tied to particular contexts. Developing expertise in teaching entails working and learning in the contexts of teaching. Much of what teachers know is connected to particular tools – such as textbooks and instructional materials. Much of what teachers know is routine and automatic. It is having much of what they know embedded in these routines that enables teachers and students to manage in a highly complex social environment. A downside of much of teachers' knowledge being routinized and automatic is that it can be difficult to examine and change when desired.

Language issues must be explicitly taken on board in designing school curricula and methods of pedagogy

Language has been found to be a highly alienating factor in the education of many school children, particularly amongst minorities, tribal communities with languages without a script, as well as linguistic minorities in most states. Many children resent the imposition of the state language as the medium of instruction, or as second language in school. More teachers for teaching minority languages must be appointed in government schools to increase intake of children from minority language communities. Qualified teachers from the local community and therefore speaking the same language must be recruited on a larger scale, as a means of encouraging retention amongst those who feel marginalized, as well as a means of bringing greater community control in the school. This would also act as a boost to confidence, and provide role models to students from disadvantaged backgrounds.

Curriculum Knowledge

Curriculum knowledge is knowledge of what should be taught to a particular group of pupils. It requires understanding of children's learning potential, national syllabuses, school planning documents and year group plans. In addition any examination or testing syllabuses must to be taken into account and any local or contextual requirements considered. Over the past twenty years what may contribute to curriculum knowledge has changed considerably. There has been the introduction of National Curricula and strategies. Teacher knowledge may be influenced through change in their experiences.

Conclusion

To improve the present knowledge system in schools, the following is suggested;

- Strive for excellence in all aspects of the learning, especially in the writing of materials, correction of work, monitoring student progress, and responding to enquiries by the learners.
- Opportunity for revision and improvement of performance should consistently be available without exams and evaluation being used as a threat to study.
- The learning experience itself must be evaluated, and not only its outcomes.
- Learners are happy to comment on the totality of their experience, and this information can be used to modify the learning system as a whole.
- The learner must be able to assess his/her learning experiences, individually and as a part of a group.

References

- Armsby, P. (2006, August 16). *The legitimisation of knowledge: A work based learning perspective of APEL*. Retrieved July 8, 2015, from <http://www.tandfonline.com/doi/full/10.1080/02601370600772368#abstract>
- Cheng, E.C.K. (2015) *Knowledge Management for School Education*. Springer Briefs in Education., retrieved on 30-06-2015 from <http://www.springer.com/in/book/9789812872326>
- Core Components of Quality Education., retrieved on July 26, 2015, from http://bepcssa.in/en/EEEQ_CCQE.php
- Dewey, J. (1897). My pedagogical creed. *School Journal*. 54. pp. 77–80. retrieved on November 4, 2011 from <http://dewey.pragmatism.org/creed.htm>
- Educational Essentialism.*, retrieved on 06-07-2015 from https://en.wikipedia.org/wiki/Educational_essentialism
- Frost, A. (2013). *The Different Types of Knowledge.*, retrieved on 30-06-2015 from <http://www.knowledge-management-tools.net/different-types-of-knowledge.html>
- Jensen, K.A. (2006). *Indigenous Education and Knowledge - a de-legitimised Concept in the Education for All Strategies*. Aalborg: Institut for Historie, Internationale Studier og Samfundsforhold, Aalborg Universitet.
- Khwaja, I.U. Curriculum development, assessment and evaluation., retrieved on July 26, 2015, from <http://www.hec.gov.pk/InsideHEC/Divisions/LearningInnovation/Documents/Curriculum%20Development,%20Assessment%20and%20Evaluation.pdf>
- Livesey, C. *The Role of Education in Society - Marxist Perspectives.*, retrieved on 07-07-2015 from <http://www.sociology.org.uk/marxism.pdf>
- Michael, D. *How can we categorize knowledge?* (8th May 2013). theoryofknowledge.net. <http://www.theoryofknowledge.net/knowledge-and-knowers/how-can-we-categorize-knowledge/> Last accessed: 5th July 2015
- National Knowledge Commission, (February 2007) *Recommendations on School Education.*, retrieved on 06-07-2015 from http://knowledgecommissionarchive.nic.in/downloads/documents/nkc_se.pdf
- Pedagogy and models of teacher knowledge.*, retrieved on 06-07-2015 from http://juliecogill.com/Chapter_2.pdf
- Professional Learning Board (2015) *Different Types of Knowledge in Education.*, retrieved on 06-07-2015 from <https://k12teacherstaffdevelopment.com/tlb/different-types-of-knowledge-in-education/>
- Progressive Education.*, retrieved on 06-07-2015 from https://en.wikipedia.org/wiki/Progressive_education

- Putnam, R. T. (2015). *Teaching - Learning To Teach, Methods For Studying.*, retrieved on 06-07-2015 from <http://education.stateuniversity.com/pages/2489/Teaching.html>
- Reddenna, M. *Curriculum and Syllabus*. retrieved on July 26, 2015, from <https://zietmysorelibrary.files.wordpress.com/2012/06/curriculum-syllabus-kv-edited.ppt>.
- School Curriculum - Core Knowledge Curriculum, Hidden Curriculum - Overview.*, retrieved on 06-07-2015 from <http://education.stateuniversity.com/pages/1900/Curriculum-School.html>
- Stabback, P. et.al. *What makes a good quality school curriculum?* (Geneva, November 2011)., retrieved on July 26, 2015, from http://www.academia.edu/3008064/What_makes_a_good_quality_school_curriculum
- UNDP (2003): “Thailand – Human Development Report”.