Information Literacy Education in Asian Developing Countries: Cultural Factors Affecting Curriculum Development and Programme Delivery

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Abstract

The prevailing models of information literacy education (ILE) are contextually grounded in Western social and intellectual structures. For the most part these models follow the taxonomy developed in the 1950s by Bloom, which has been adopted as appropriate for developing societies without considering the contexts from which they are derived, and in which they are being applied. For ILE to be meaningfully embedded in the educational fabric of a developing country, it is important to take account of a range of contextual variables that affect how and why individuals learn.

Focusing on ILE through the lens of cultural contextuality, this paper addresses three questions in relation to ILE in developing countries: How do we define information literacy in a developing country context? How do we best determine the educational objectives of information literacy education in a developing country context? How can cultural awareness improve information literacy education?

Keywords

Information literacy; Information literacy education; Developing countries; Cultural context; Geert Hofstede

Introduction

Culture, maintains Cutler (2005) is like an onion, multi-layered and increasingly intense as one peels away each layer. The outer skin consists of subjective elements such as visible behaviour, relationship styles, thinking and learning styles, organisation and work styles, communication styles. Beneath this surface layer are value systems and norms, shared values and accepted standards of behaviour; and at the deepest level are core cultural assumptions, what Cutler terms 'basic "truths" about human identity and purpose, space, time, social organisation, ways of thinking and communicating that, for the most part, groups and their members are wholly unaware of' (Cutler 2005, vol. 1, p. 76).

In our view this way of visualising culture is instructive and informative, and in the context of this paper may in fact be the key to what we are seeking to understand – the way in which information literacy education models and techniques appear to be imported from one culture (i.e., typically 'developed' and 'Western') to another (i.e., typically 'developing' and 'Southern'). The onion-image of culture can be applied at many levels: groups, organisations, institutions, regions, nations, etc. But each level tends to anchor its sense of culture at a different layer. For example, a teaching team culture (or indeed any 'team' of individuals) exists primarily at the level of behaviour (the outer layer of subjective culture) and much less at the level of core cultural assumptions, whereas 'national culture often resides less in practices and more in taken-for-granted values and assumptions' – that is, the inner layer of core cultural assumptions (Cutler 2005, p. 77).
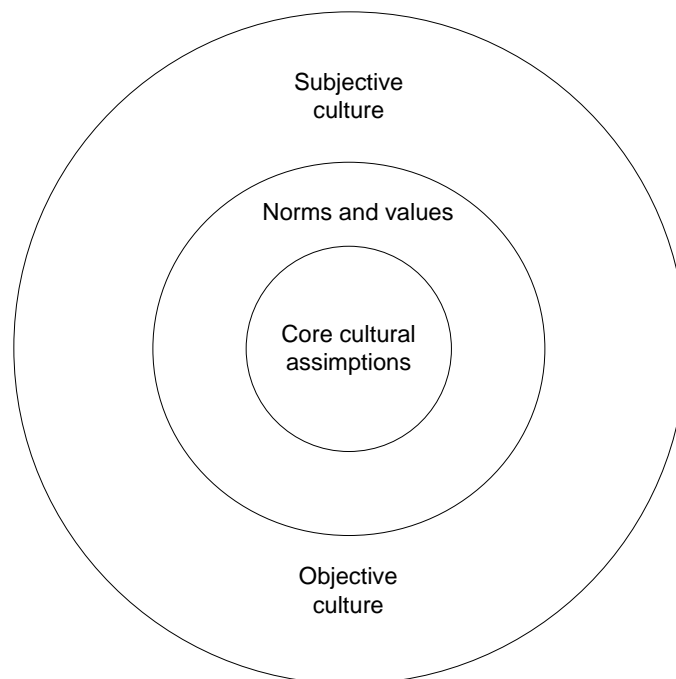

Figure 1. Cutler's Cultural 'Onion'

In terms of information literacy education in developing countries these two quite different sets of cultural assumptions may well be setting up educational efforts for

failure. A Western-influenced information literacy curriculum, based on Western norms and taught according to Western pedagogical practices, may not succeed when it focuses on behavioural changes (as indeed it must, according to how we currently assess educational results in terms of outcomes). This is because, beneath the outer layer of visible behavioural styles, and learning and thinking styles, the core cultural assumptions, which may well run counter to the surface changes, remain untouched. And it is these core values which ultimately determine the long-term 'success' of any education.

In other fields of education – school-level science, for example – this issue has received considerable attention over the years, with a common view being the disparity between science and daily cultures. This was put most succinctly by Aikenhead and Jegede (1999, p. 269), citing Maddock (1981), Aikenhead (1997) and Jegede (1995):

> One major influence on science education identified by students in developing countries is their feeling that school science is like a foreign culture to them (Maddock, 1981). Their feeling stems from fundamental differences between the culture of Western science and their indigenous cultures (Aikenhead, 1997; Jegede, 1995).

Might the same situation hold when we investigate differences between the culture of what is essentially Western information literacy education and indigenous cultures in developing countries? And if this is found to be the case, does it not mean that information literacy education so conceived will never be more than superficial in developing countries, focusing on outer behaviours rather than core values? Aikenhead and Jegede (1999, p. 269) answer this for us when they state that a 21st century priority for educators is '…to develop culturally sensitive curricula and teaching methods that reduce the foreignness felt by students' – note the reference to both curricula *and* pedagogy.

In our view this issue of cultural influence on information literacy education in particular has received insufficient attention, yet it has major impact on the entire enterprise – from how we define information literacy, to how we seek to structure programmes, and to how we deliver information literacy content. The purpose of this paper is to open dialogue on such issues by raising questions for consideration.

Question 1: How Do We Define Information Literacy in a Developing Country Context?

We begin with the definition which has widest acceptance in Western countries as a standard guide to what is meant by 'information literacy'. As stated by the US Association of College and Research Libraries, the definition focuses on specific skill-based outcomes:

> 'a set of *abilities* requiring individuals to recognise when *information is needed* and have the ability to *locate, evaluate* and *use* effectively the needed information' [our emphasis] (ACRL 2000).

On a superficial level this definition cannot be faulted – information literacy is indeed a set of abilities, and the whole concept is certainly built around an information need. From a pedagogical standpoint the outcomes could not be clearer: 'locate', 'evaluate',' use'. And yet, like others in recent times, we feel uneasy about this definition because of its inherent limitations and constraints.

Simmons (2005), Norgaard (2004) and Luke and Kapitzke (1999), among others, have recently highlighted what they regard as fatal flaws in this definition. We tend to agree with Simmons that the definition fails to question some basic assumptions about 'information', and instead assumes that it is naturally A Good Thing. In particular, according to Simmons (2005, p. 299),

> Helping students to examine and question the social, economic, and political context for the production and consumption of information is a vital corollary to teaching the skills of information literacy. Additionally, facilitating students' understanding that they can be participants in scholarly conversations encourages them to think of research not as a task of collecting information but instead as a task of constructing meaning.

Such questioning and raising of issues is the way in which information becomes knowledge, and is this not the ultimate goal of information literacy? (When we examine Bloom's taxonomy this will seem to be the case.) Information does indeed exist in a context, and not to understand that is ultimately not to understand information, and thereby fail to use it effectively in knowledge generation. Information literacy, despite what many information professionals may believe, is not the simple collection of vast amounts of information – this is akin to the aeroplane mechanic collecting the various pieces of a jet engine and placing them in neat rows. This does not make a jet engine. Rather, it is the constructing of meaning from information that has true value – of learning how to fit the engine pieces together into a workable jet engine, and this is what information literacy must do if it is to be effective, most especially in developing countries, where information is increasingly recognised as a key tool for development.

The alternative view, and one which is fostered by the ACRL definition, is that information literacy is explained as a set of measurable skills ('locate', 'evaluate', 'use') – much like the traditional view of its parent discipline, literacy. 'Literacy is too often conceived of in normative terms along a deficit model (literacy, of course, being something we "ought" to acquire). In such a model, information literacy can easily be reduced to a neutral, technological skill that is seen as merely functional or performative' (Norgaard 2004, p. 221).

Instead of these merely functional skills, we should see information literacy as learning how to integrate and evaluate information in complex situations and within communication structures. Instead of a 'skill-based paradigm that surely continues to haunt information literacy', we need to conceive information literacy as 'a process-oriented literacy' which puts it 'in a far better position to communicate its inherent intellectual vitality and larger social and ethical relevance' (Norgaard 2004, p. 221).

Luke and Kapitzke (1999) carry this criticism into the lair of the supposed 'experts' in their critique of the influential work of Breivik and Gee, *Information Literacy: Revolution in the Library* (1989). In Luke and Kapitzke's view, Breivik and Gee see knowledge as an external phenomenon, something the learner can reach out and grasp: 'Seekers of "Truth" can track it down and capture it either in the confines of the library or in a limitless cyberspace' (Luke and Kapitzke (1999, p. 483). Using this approach, information literacy educators manage to avoid the principal concerns regarding knowledge — the social construction and cultural authority of knowledge, the political economies of knowledge ownership and control, and the development of local communities' and cultures' capacities to critique and construct knowledge (Luke and Kapitzke 1999, pp. 483-484).

Of course, Breivik and Gee are not alone in this narrow, context-neutral, functional view of information literacy, as anyone familiar with current information literacy writing and resources can attest; the evidence ranges from such 'big business' approaches as the 'Big Six' – take a look at the marketing of this information literacy programme at <http://www.big6.com/> – to some of the most recent books on the subject: almost at random, we have N.P. Thomas' *Information Literacy and Information Skills Instruction: Applying Research to Practice in the School Library Media Center*, 2nd ed. (Libraries Unlimited, 2004), D. Duncan and L. Lockhart, *I-Search for Success* (Neal-Schuman, 2005), etc.

All well-meaning, but with Luke and Kapitzke we would argue that

> …these emergent information literacy frameworks are part of the problem – at best anachronistic and dysfunctional, at worst counter-productive in their avoidance of the central questions facing students, teachers and librarians about:
>
> - the social construction and cultural authority of knowledge
> - the political economies of knowledge ownership and control
> - the development of local communities' and cultures' capacities to critique and construct knowledge (Luke and Kapitzke 1999, pp. 483-484).

In summary, then, in our view there are serious shortcomings with the definition of information literacy when it is applied to developing countries. To begin with, it tends to reduce the process to a group of 'skill sets', and more particularly reduces it to a functional technological skill. Further, it does not question the basic assumptions about information, and how it become knowledge, assuming the latter to be some thing external that can be tracked down and captured like small wild animals.

Along with Luke and Kapitzke (1999), we believe the corollary to be that an effective, robust definition for developing countries is one that recognises the social construction and cultural authority of knowledge, and works within this paradigm (wherever it may be). Further, information literacy, or information literate individuals, must become intimately familiar with the political economy of knowledge ownership and control, and this will determine their ability to access and understand information/knowledge throughout life. And finally, information literacy in developing countries in particular must involve the development of a capacity within

local communities and local cultures to critique existing knowledge found by means of effective information literacy and to construct new knowledge on the basis of this critique.

Thus we are left with this operational definition of information literacy in developing countries:

> The ability of individuals or groups
> - to be aware of why, how and by whom information is created, communicated and controlled, and how it contributes to the construction of knowledge
> - to understand when information can be used to improve their daily living or to contribute to the resolution of needs related to specific situations, such as at work or school
> - to know how to locate information and to critique its relevance and appropriateness to their context
> - to understand how to integrate relevant and appropriate information with what they already know to new construct knowledge that increases their capacity to improve their daily living or to resolve needs related to specific situations that have arisen.

Question 2: How Do We Best Determine the Educational Objectives of Information Literacy Education in a Developing Country Context?

It is widely recognised that Benjamin Bloom's classic work, *Taxonomy of Educational Objectives* (1956) is the framework behind, as far as we can determine, nearly all information literacy education programmes. His taxonomy has led to recent derivatives, such as Anderson and Krathwohl's *A Taxonomy for Learning, Teaching and Assessing* (2001). The characteristic categories in Bloom's Taxonomy are based on his understanding of the cognitive process, which he and his apostles see as a series of six levels (Figure 2).
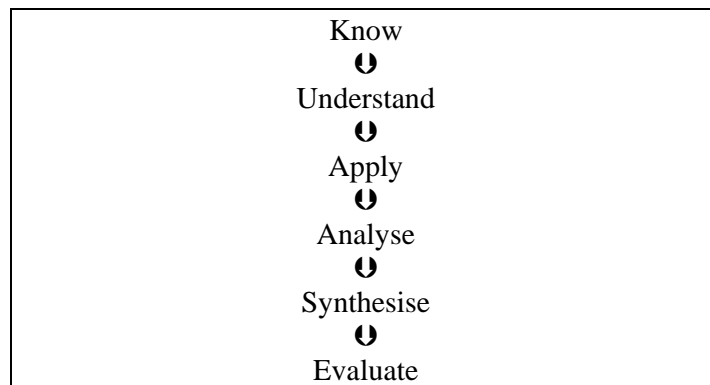
Know
⊍
Understand
⊍
Apply
⊍
Analyse
⊍
Synthesise
⊍
Evaluate

Figure 2. Categories in Bloom's Cognitive Process

Anderson and Krathwohl (2001) may use different terms, but the intention remains unchanged. That is, learning and educational outcomes are achieved in this process through a series of linked steps; one moves from knowing (knowledge of specifics) to understanding (interpreting, extrapolating) to applying to analysing (elements, relationships) to synthesising (producing a communication or plan) and, finally, to evaluation (judging the results).

We believe that Bloom's taxonomy (1956) is used as a framework for constructing information literacy education programmes without thought being given to cultural aspects of education. Indeed, according to Anderson (2005, p. 107), the original purpose of Bloom's taxonomy was to reduce the amount of work involved in preparing annual comprehensive examinations. The reduction of labour in education was extended through the taxonomy to teaching in general by establishing an heuristic approach for teachers to produce the learning objectives needed for specific curricula, courses or classes, the learning activities required to achieve those objectives, and the forms of assessment/evaluation tasks needed to determine how well the students achieved the learning objectives. The taxonomy and its derivatives are, as mentioned earlier, used extensively in information literacy education programmes. We contend that because Bloom's taxonomy was intended to achieve efficiency of the teacher's effort in a Western cultural context, ILE programme designers elsewhere forget to consider the importance of culture.

Although later in this paper we will criticise this taxonomy and its deductive-style cognitive process, this is not to say that it lacks value in information literacy education. Indeed, we wish to emphasise that Bloom's Taxonomy of Educational Objectives is quite consistent with the nature of information literacy education and its desired outcomes, and that it provides a valuable foundation (though not necessarily a rigid template) for developing more individualised information literacy educational taxonomies grounded in local cultural understandings. For example, one might use Bloom's Cognitive Process to create an information literacy education model similar to that in Figure 3.
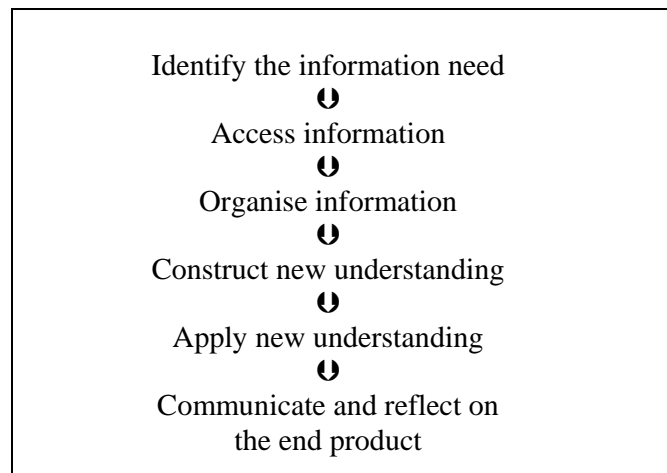
Identify the information need
⟳
Access information
⟳
Organise information
⟳
Construct new understanding
⟳
Apply new understanding
⟳
Communicate and reflect on
the end product

Figure 3. An ILE Cognitive Process Model Following Bloom's Taxonomy

As clear, orderly and logical as this seems, we detect a number of issues arising from an attempt to impose this sort of structure outside a Western context. In the first instance, it assumes that learners exist in some sort of intellectual and cultural void and that they all learn in the same structured ways (logically and consistently proceeding through the six steps in Figure 3). Second, it assumes that all learners are suitably reflective and individualistic in their learning styles (Figure 3, steps 4-6 in particular). Third, such a model fails completely to take account of culturally and socially determined differences, especially between developed and developing countries. Fourth, and in agreement with Luke and Kapitzke (p. 484), the model represents '…a linear-scientific method that [is] being superseded by other modes of inquiry, thinking and analysis currently being invented by, among others, students, researchers and scientists, teachers and librarians'.

These culturally and socially determined differences, we must remember, reflect the ways in which people feel, communicate and learn (as Figure 1 highlights). When we ignore these factors, we are forgetting how cultures differentiate and distinguish groups, and seek to impose a single cultural model that fails to account for these differences. Admittedly speaking of international students studying overseas, Zhai clearly highlights the stresses among students caused by '…different teaching methods, fast-paced class sessions, two-way interaction with professors in the classroom, more student participation in the class, more classroom and group activities, more reading and writing assignments, and more class study' (Zhai 2002).

The same would apply to a Bloom-based information literacy education process that might be used in a developing country – a kind of educational imperialism, or at least a highly insensitive approach to education. The results of such an approach are well-documented in the literature of education in other disciplines. In their study of science education, for example, Waldrip and Taylor (1999, pp.289-290) found that programmes tend to be 'imported' without change, and certainly without due consideration for local culture. The results are what one might expect: there is a 'school view' of the world, or at least the world of a specific discipline or learning style, that is essentially a Western view; students 'put on' this view when they are in school and learning, and it has little to do with their culturally-based worldviews and therefore has little meaning. In effect, '*this* is what I am taught in school, yet *this* is the way life really is'.

In common with other investigators, among them Aikenhead and Jegede (1999) and Waldrip and Taylor (1999), we believe that what occurs in this situation is a downward spiral to educational failure, or rather the failure of classroom learning to become embedded in the learner's way of life. First, a disparity develops between the learners' worldviews and their school views; this gives rise to conflicting sets of values, one from within the culture, one imposed from without. To cope with this, the learners' compartmentalise their values, as suggested above, with one set for the classroom, and another, real set for the world. Thus 'real life' learning fails – and whether we are discussing science education or information literacy education, above all else educators want their programmes to be embedded in 'real life' so that understanding becomes part of a lifelong learning process.

As this discussion suggests, we believe that a new approach to the structure and delivery of information literacy education in developing countries is imperative. Such an approach needs to incorporate understanding of how people learn in different environments, understanding of how culture affects the way we learn and teach, and an ability to contextualise information literacy education within the culture and society for which it is intended.

Question 3: How Can Cultural Awareness Improve Information Literacy Education?

This, in fact, is the most important question for those of us from developed countries who seek to contribute to the implementation of more robust information infrastructures in developing countries through information literacy and information literacy education. And as information professionals we start with some major disadvantages: most of us are neither trained teachers nor anthropologists, yet the skills of both professions are valuable in understanding how cultural awareness can contribute to 'better' information literacy education, and the training of information literacy educators in developing countries. To overcome these inherent weaknesses in our professional capabilities, we must rely on the expertise of colleagues in cognate disciplines.

In the last two decades or more, the work of one particular investigator has become increasingly recognised as a valid means of understanding the impact of cultures on behaviour (including teaching and learning), on values and on core cultural assumptions – and here it may help to refer again to Figure 1. The investigator we refer to is Geert Hofstede, and his Five Dimensions of Culture as articulated in his seminal works, *Culture's Consequences: International Differences in Work-Related Values* (1980), and *Cultures and Organizations: Software of the Mind* (1991).

For those who may be unfamiliar with Hofstede's Five Dimensions of Culture, these are:

1 Power Distance
2 Individualism and Collectivism
3 Masculinity
4 Uncertainty Avoidance
5 Long Term Orientation

Much of the following is derived from, and explained in detail on, Hofstede's website <http://feweb.uvt.nl/center/hofstede/index.htm> and in his numerous writings noted in the References.

Power Distance (PD) refers to the degree of equality, or inequality, between people in a society. It is the extent to which the less powerful members of organisations and institutions (for example, the family) accept that power is distributed unequally. This represents inequality as defined from below, not from above. It suggests that a society's level of inequality is endorsed by the followers as much as by the leaders. A high Power Distance ranking for a country or society indicates strong inequalities of

power and wealth, whereas a low Power Distance ranking suggests that society places much less emphasis on differences between power and wealth.

Individualism (IDV) – with its opposite, collectivism – refers to the degree to which a society reinforces individual or collective achievement and interpersonal relationships. Individualism addresses the degree to which individuals are integrated into groups. A high Individualism ranking suggests a society in which the ties between individuals are loose, and everyone is expected to look after his and his family's needs above all else. A low Individualism ranking suggests a collectivist approach, with people from birth onwards integrated into strong, cohesive in-groups, often extended families which protect them in exchange for unquestioning loyalty.

Masculinity (MAS) focuses on the degree to which society reinforces the traditional masculine role model of male achievement, control and power. Masculinity (and its opposite, femininity) reflects the distribution of roles between genders. According to Hofstede, (a) women's values differ less among societies than men's values; (b) men's values from one country to another contain a dimension from very assertive and competitive (seen as 'masculine'), to modest and caring (seen as 'feminine'). Women in feminine countries have the same modest, caring values as the men; in the masculine countries they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's and women's values. Thus a high Masculinity ranking suggests a high degree of gender differentiation, with the masculine role model dominating, and low Masculinity ranking indicates a low level of differentiation between the genders.

Uncertainty Avoidance (UA, or UAI for Uncertainty Avoidance Index) addresses a society's tolerance for uncertainty and ambiguity, and indicates to what extent a culture programmes its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are 'novel, unknown, surprising', and uncertainty-avoiding cultures seek to minimise the possibility of such situations by strict laws and rules, safety and security measures, and by maintaining that 'there can only be one Truth and we have it'. In contrast uncertainty-accepting cultures are more tolerant of opinions different from the norm, and they try to have as few rules as possible. A high Uncertainty Avoidance ranking reflects a society's low tolerance for uncertainty and ambiguity, while a low Uncertainty Avoidance ranking suggests that a society is more flexible and accepting of varied opinions.

Finally, Long Term Orientation (LTO), according to Hofstede, deals with 'Virtue regardless of Truth'. Values associated with Long Term Orientation are thrift and perseverance; values associated with the opposite of LTO, Short Term Orientation, are respect for tradition, fulfilling social obligations, and saving face. A high LTO ranking would mean that perseverance and thriftiness predominate in a culture or group, whereas a high STO ranking would suggest that respect for tradition and social obligations predominate. In our view this is the least convincing of Hofstede's categories, and he does indicate that this was derived differently from the other four categories.

What does this cultural categorisation look like in practice? The simplest way to answer this is to compare the profiles of three countries as determined by Hofstede – New Zealand, Thailand and South Korea, for example. Looking at Figure 4, we see

that New Zealand is characterised by a low PD (or PDI, Power Distance Index) and a high IDV; that is, for New Zealanders there is little distinction between a person's power and wealth, and they value individuality very highly. In Thailand and South Korea, on the other hand, a high PDI and low IDV indicate that there are strong inequalities based on power and wealth, and that individuality is less valued than collectivism. The remaining three dimensions show equivalent disparities between New Zealand and the two Asian countries.   While the disparities across the dimensions of culture are not consistently different between Western countries and Eastern ones, we can see in Table 4 the similarity between Thailand and South Korea and the difference of those two with New Zealand.
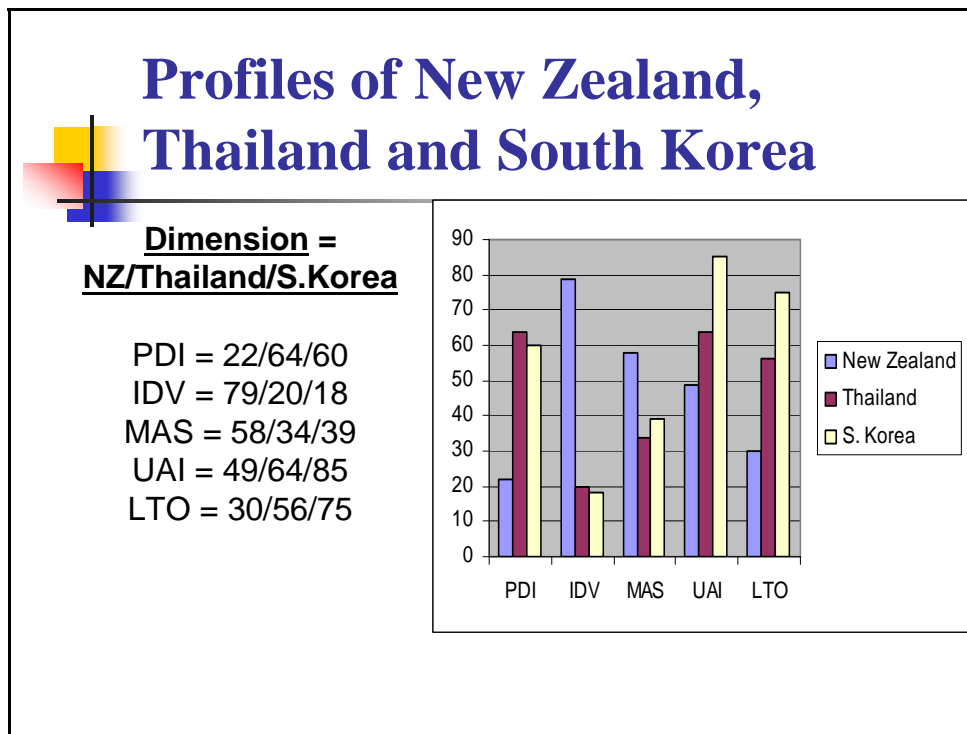
Profiles of New Zealand, Thailand and South Korea

Dimension = NZ/Thailand/S.Korea

PDI = 22/64/60
IDV = 79/20/18
MAS = 58/34/39
UAI = 49/64/85
LTO = 30/56/75

Figure 4. New Zealand, Thailand and South Korea Profiles

Factors such as these begin to highlight specific issues related to the use of Western or Western-derived ILE models and pedagogical methods in developing countries. In the remainder of this paper, we shall examine these issues in the context of Hofstede's Dimensions of Culture. In *Culture's Consequences* (2nd ed., 2001) Hofstede examines the implications of the dimensions on a variety of life situations – some that relate specifically to a particular dimension (e.g., masculinity and femininity in gender roles) and some (e.g., the family, work) that relate to all of the cultural dimensions. Of particular interest to us is his examination of the implications of four of the dimensions on schools and educational systems, and on the fifth dimension – Long Term/ Short Term Orientation – on 'ways of thinking', which also relates closely to our discussion here.

We shall now examine what Hofstede says about the implications on schools and educational systems and ways of thinking, and then ask questions about how these views apply to the cognitive process for ILE as derived from Bloom's taxonomy so that we can respond to the question, How can cultural awareness improve information literacy education?

According to Hofstede (2001, p. 100), the Power Distance dimension has large implications in conceptualising of any educational endeavour. He points out that the basic values from parent-child relationships are reflected in teacher-student relationships. Therefore, in a society with a high PD score, there is a large distance between parent-child and teacher-child 'that caters to the need for dependence well-established in the student's mind' (p. 100). In a society with a low PD score, teachers treat students as relative equals and expect to be treated similarly by students, and 'the system is based on the students' well-developed need for independence' (p. 101). The teaching process in a high PD society is teacher-centric, with teachers outlining with the teachers 'the intellectual paths to be followed' (p. 100), whereas in a low PD society it is student-centric, with learners being expected to determine 'their own intellectual paths' (p. 101). And the quality of a student's learning in a high Power Distance society 'is virtually exclusively dependent on the excellence of his or her teachers', whereas in the low Power Distance society it is largely 'determined by the excellence of the students' (p. 101).

The Individualism dimension affects not only students' willingness to act individually, but also the ease with which they interact with others and, ultimately, their reasons for learning. As Hofstede notes (p. 234), a person's relationship with groups is established in his or her consciousness during the early years with family, and they are developed and reinforced further at school. In a collectivist society students form in-class subgroups based on ethnic or clan backgrounds, which makes it more difficult than in an individualist society to assign joint tasks that will lead to the formation of new groups (p. 234). In the individualist society 'group formation among students is much more ad hoc according to the task or to particular friendships and skills' (p. 235). Saving face and maintaining harmony are extremely important in the collectivist classroom, whereas in the individualist classroom 'confrontations and open discussions of conflict are sometimes considered salutary' (p. 235) – that is, very important to the learning process. In a collectivist society it is important not to lose face; therefore, students do not speak up in class. Conversely, in the individualist society the notion of losing face is not an issue, so speaking up in class is considered desirable, and good teachers 'are supposed to reinforce students' self-esteem' (p. 235).

Of greatest importance to our discussion of information literacy education is the difference in the perceived purpose of education in individualist and collectivist societies. Hofstede states that 'in the former, education is seen as aimed at preparing the individual for a place in a society of other individuals. This focus means learning to cope with new, unknown, unforeseen situations' (p. 235). In collectivist societies, on the other hand, 'education stresses adaptation to the skills and virtues necessary to be an acceptable group member. This focus leads to a premium on the products of tradition' (p. 235). In collectivist societies education is reserved for the young, 'who have to learn *how to do* things in order to participate in society, and in individualist societies it is 'not so much about *how to do* things as it is to know *how to learn*',

because learning never ends and people need skills to get along in today's world (p. 235).

Masculinity and femininity impact on education in terms of evaluation, among other things. Brilliance and academic reputation, from Hofstede's perspective, are used for evaluating the performance of teachers in highly masculine societies, as opposed to friendliness and social skills in highly feminine societies (Hofstede 2001, p. 303). For students, academic performance is used as the main criterion for evaluating performance in societies with high Masculinity ratings, whereas the students' social adaptation is used in highly feminine societies. 'Failing in school is a disaster in a masculine culture …. Failure in school in a feminine culture is a relatively minor incident' (p. 303). Public praise, awards for excellence, and competitiveness (including competitive sports) are used in high Masculinity countries, whereas in feminine countries teachers do not generally praise good students (though they may encourage weaker students through praise), and competition is not actively encouraged (competitive sports are extramural activities).

Interestingly, and of great relevance to information literacy educators, Hofstede notes that in a study of three literacy skills (reading, writing and numeracy), 'respondents in masculine countries rated themselves as excellent more often than did equally skilled respondents in feminine countries' (p. 304). Hofstede (p. 305) point outs that field dependence is a feminine characteristic, possessed by individuals who generally rely on external frames of reference as guides to behaviour. Field *in*dependence, on the other hand, is a masculine characteristic possessed by individuals who perceive an object separately from its and their environment. Field-dependent individuals (and therefore students in highly feminine societies) possess better social skills, whereas field-independent individuals (and therefore students in highly masculine societies) possess better analytical skills.

Uncertainty Avoidance, according to Hofstede (2001), is a dimension that relates to the amount of structure desired in education activities. He explains that 'when uncertainty avoidance is relatively strong … both students and teachers favour structured learning situations with precise objectives, detailed assignments, and strict timetables' (p. 162). In societies with weaker Uncertainty Avoidance,\ structure is despised by students and teachers who instead prefer 'open-ended learning situations with vague objectives, broad assignments, and no timetables at all'. Students in societies with high Uncertainty Avoidance prefer assessment with only one correct answer and expect recognition for accuracy, whereas those in low Uncertainty Avoidance societies believe that 'where there can be only one correct answer is taboo … [a]nd they expect to be rewarded for originality' (p. 162). In high UA countries, students expect teachers to be experts 'with all the answers' who use cryptic academic language and should not be challenged; but in low UA countries students respect teachers who admit to not knowing all the answers and who use simple language to explain complex concepts. Students in low UA countries consider intellectual disagreements with teachers as stimulating academic exercises. In high UA countries students are more likely to attribute their success or failure to external factors such as good or bad luck, whereas in low UA countries students are more likely to attribute success or failure to internal factors such as their own effort or ability – or lack thereof.

As mentioned earlier, Hofstede (2001) does not examine the implications of Long term Orientation (LTO) on schools and education. Rather he focuses on its implications for 'ways of thinking' (p. 362). The discussion is complex and includes, for example, reference to the impact of LTO on how cultures think about good and evil, and about equality and justice. Considering that the top five positions in the LTO index of 23 countries (Hofstede, p. 356) are held by East Asian countries and that Western countries (at least from a cultural perspective) such as Germany, Australia, New Zealand, the United States and Great Britain are all located in the bottom half of the scale, we can see that differences in LTO between East and West are quite strong.

Of importance to our current subject is Hofstede's discussion of how the different logics of 'East and West followed different paths … in developing science and technology' (p. 364). Hofstede contends that Western Truth derived from an ideal of rights-based individualism and stimulated analytical thinking, whereas Eastern Virtue derived from an ideal that emphasised the inter-relatedness of individuals and led to synthetic thinking (p. 364). As an example, he talks about the success of Japanese companies in taking Western analytically-derived technologies and putting them into practice by making use of their own synthesizing abilities. He goes on to point out that 'high-LTO cultures prove to be well equipped for solving…well-defined problems; low-LTO cultures seem to try more heuristic approaches, even where problems can be basically structured.' Thus, while Asian students tend to do very well in basic mathematics which requires solving well-defined problems with clear paths to correct and incorrect responses, they are less successful in scientific subjects which require solving more open problems where the correct answers cannot be determined by following a clear-cut path. Students in low LTO countries do better in structured problem solving, whereas those in high LTO countries perform better in fuzzy-problem solving (p. 367).

We can now examine each of the steps in the Information Literacy Taxonomy as we ask the question, How Can Cultural Awareness Improve Information Literacy Education? To answer this question we begin by examining each of the steps in the Information Literacy Taxonony (Figure 5).

Hofstede's Dimensions of Culture	**Information Literacy Taxonomy**
1. Power Distance 2. Individualism 3. Masculinity 4. Uncertainty Avoidance 5. Long Term Orientation	Identify information need ↻ Access information ↻ Organise information ↻ Construct new understanding ↻ Apply new understanding ↻ Communicate and reflect on the end product

Figure 5. The Dimensions of Culture and the Information Literacy Taxonomy

Following Figure 5, the first step in the taxonomy is *Identify information need.* A New Zealand teacher might well say 'we need to take a problem-solving approach here so that each student can relate the concept of an information need to a problem that he or she has. Each student can then address the problem and solve it.' Based on framing the first step in this way, the New Zealand teacher will develop learning activities around tasks that focus the students on gaining an understanding of information literacy as a process that starts by equating their individual needs with problems to be solved through the application of information. The first step in the taxonomy then provides the logic for creating the 'plan of attack', which leads into Steps 2 (*Access information*), 3 (*Organise information*), 4 (*Construct new understanding*) and 5 (*Apply new understanding).* In a country such as New Zealand, which has a low Power Distance value, it may make perfect sense pedagogically to frame the first step this way. However, we need to ask, Does framing the first step in this way make sense pedagogically in all cultures when we consider the Dimensions of Culture?

In New Zealand teachers expect students to 'develop their own intellectual paths', and the students themselves expect and want to be asked to solve their own problems as a means of achieving independence. Given New Zealand's high Individualism, the expectation of teachers and students is for the learning process to prepare students to take their places in a society of individuals – therefore, it makes sense pedagogically to teach students how to identify their information needs as individual problems so that they can learn to fend for themselves and get along in the world.

In New Zealand, with a moderately high value on the Masculinity index, it may make good sense for teachers of information literacy to develop learning activities in which students relate identifying an information need to a competitive challenge to which they must apply their analytical skills. New Zealand's relatively low Long Term Orientation score also makes it appropriate for an information literacy teacher to demonstrate to students skills such as how to conduct searches of library catalogues,

online indexes, full-text databases, the World Wide Web and so on, and to show the students how to use software such as EndNote to organise information, and to explain how to analyse it to derive the most relevant information to come to a new understanding and to solve the problem.

Thailand and South Korea have low scores in Individualism and Masculinity – in other words, Thai and South Korean cultures exhibit characteristics of high collectivism and high femininity. They also have relatively high LTO scores. Therefore, we need to ask, In East Asian nations such as Thailand and South Korea would cooperative group work be more pedagogically sound for learning than competitive individual tasks? Would it be better for the teacher to explain how to identify an information need (Step 1 in Figure 5) by providing the students with a clear example of a situation or problem that they as a group can improve or resolve through the use of relevant information? Recall that in countries such as Thailand and South Korea, which have high Power Distance ratings, Hofstede (2001, p. 100) suggests that students will be familiar and comfortable with a teacher-centric approach to learning and will be accustomed to learning through the provision of clear paths to follow. Therefore, we are compelled to ask whether students in Thailand and South Korea would learn about Steps 2 through 5 (Figure 5) better if the teacher provided an example of a situation or problem, i.e., an information need, for which a group followed clearly defined steps: to locate information, to organise it, to come to a new understanding through the process of synthesis by relating the found information to what they already knew, and finally to apply to the situation or problem.

In a country such as New Zealand, with a relatively low Uncertainty Avoidance score, it is not surprising to find that university library staff will seek the cooperation of academic staff to embed information literacy education in the curricular, teaching, learning and assessment processes. The rationale here is that students will learn about information literacy much better in the context of a real information need. In a country such as South Korea, which has a Uncertainty Avoidance score, we must ask, How would the students react to a library-based programme being embedded in their 'academic' courses, and affecting their final assessments? From the organisational perspective it is possible for librarians in New Zealand, which has a low Power Distance rating, to request academic staff to work with them on information literacy education. The librarians and academic staff are relatively equal in status and power; therefore, they are comfortable working cooperatively. In South Korea, which has a moderately high Power Distance rating, the ability to embed information literacy education in the curricular, teaching, learning and assessment processes might not be possible because of the barriers to cooperation posed by inequalities between library and academic staff.

The final step in the Information Literacy Taxonomy is to communicate and reflect on the end product. As already discussed, in a country such as New Zealand it might make pedagogical sense to embed information literacy programmes in the actual curriculum, with specific learning activities based on the students' individual information needs for actual assignments in their courses. New Zealand students live in a culture with low Power Distance, high Individuality, moderately high Masculinity, moderate Uncertainty Avoidance, and low Long Term Orientation. Taking these factors into consideration, it may well be appropriate to hold information

literacy classes or tutorials during the period when the students are working on their assignments, and to ask the students to discuss and share their successes and failures with respect to the various steps related to information literacy.

In addition to the actual assignment for the course that was used to embed information literacy instruction, it might also make good pedagogical sense to require the students to maintain a journal about their efforts and experiences as they progressed through the steps in the Information Literacy Taxonomy – reporting matters such as where they searched for information, how successful the searchers were, the criteria they used to determine relevance, how they organised the information and so on, and ultimately to reflect on what they learned with respect to the process. The journal would help them reflect on what they have learned because in an individualist culture like New Zealand's, education is about knowing how to learn – which, after all, is what information literacy is all about. In New Zealand, which has a relatively low LTO score, in a final class or tutorial in an information literacy programme after the assessment activity has been completed, it might be useful pedagogically to have the students discuss the heuristic approaches they used to resolve their information needs.

We need to ask, What is the best way to teach students to communicate and reflect on the resolution of their information need? The final step in the taxonomy must relate back to what the students experienced through the learning activities. Whereas embedding information literacy education into the curriculum of core subjects might be sound pedagogical practice in New Zealand, it might not be so for students in South Korea or Thailand, countries which have high Power Distance, low Individuality, lower Masculinity characteristics, moderate to high Uncertainty Avoidance, and high Long Term Orientation. Would embedding information literacy into core academic courses and making it a part of the courses' assessment cause undue stress for the students, and perhaps lead to information anxiety? Information anxiety is caused by the inability to access or understand the information one needs, by information overload, by lack of clear organisation of information and by the inability to incorporate it into what is already known. Would students in classroom discussions or in individual journals share their experiences about unsuccessful, as well as successful, strategies because of fear of losing face?

In countries such as South Korea and Thailand, and indeed in developing countries everywhere, we need to ask, How do cultural dimensions of a country, region or community affect the manner in which the students learn to be information literate? What would be good pedagogical strategies in individual cultures for teaching information literacy? Clearly, programmes derived directly from Western countries such as New Zealand, Australia or Britain would not provide good pedagogical practices for application in East Asian countries.

To answer the question, 'How do cultural dimensions of a country affect the manner in which the students learn to be information literate?', we need to ask questions such as the following:

- What is the best definition for information literacy in developing countries?
- What is the best way to frame the initial identification of the information need?

- Would students gain understanding more quickly by working in groups or as individuals on information literacy activities?
- Would students learn more effectively about information literacy if the teacher provided examples to follow rather than requiring students to 'learn by doing'?
- Would student learning be more successful in embedded contexts than in artificial ones?
- What is the most effective way to encourage students to communicate their results and to reflect on the outcomes?

In this paper we have begun to reassess our understandings of information literacy education in a developing country context. We have focused on three main questions:

- How do we define information literacy in a developing country context?
- How do we best determine the educational objectives of information literacy education in a developing country context?
- How can cultural awareness improve information literacy education?

Our discussion has led to more questions than answers. To continue the quest for answers to these questions, it is necessary for fieldwork to be conducted in developing countries. Indeed, immediately after this conference we will begin such research on the cultural dimensions of information literacy education in Laos, Cambodia and Thailand. The results of our fieldwork investigations will be reported in a subsequent paper.

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