

**What Role Does Culture Play in How Children and Young People
View Knowledge and Understand Knowing?**

Acknowledgements

At this point as I am approaching the end of one long journey I am eagerly awaiting the start of the next.

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Abstract

My systematic literature review is a quantitative literature review to investigate the impact culture plays on epistemology. I wondered whether the longstanding pattern of “epistemological development” discussed in the literature was as a result of the culture in which the studies were conducted. Consequently, I utilised a systematic review process outlined by Petticrew and Roberts to identify and review 12 studies that had considered cross cultural differences in epistemology. All the studies considered except one found that culture did have a significant impact on epistemology. This finding led me to identify a gap in the literature which involved using a qualitative methodology to investigate epistemology in a culture that had not been previously considered, using participants younger than those in any of the aforementioned studies. I therefore used narrative inquiry to gather the views of eight Czech Roma pupils in year 5. I used unstructured interviews and using topics identified in the previous literature was able to ask questions from which I inferred epistemological positions. The findings were that all the young people displayed thinking that could be associated with a social constructionist stance. The implications of this are then discussed particularly in relation to an education system that is becoming ever more reliant on a positivist paradigm. This piece of work also includes a bridging document that contextualizes my systematic literature review and empirical research by discussing important issues that I was unable to discuss in the other documents.

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A Systematic Literature Review to investigate the impact culture plays on Epistemological Development

Abstract

This systematic literature review investigates the impact culture plays on Epistemological Development. Initially the historical literature surrounding epistemology is considered. A pattern is identified in a range of literature that considers a variety of constructs that are similar in nature to epistemology. This remarkably similar pattern led to these constructs being amalgamated into one labelled “epistemological development.” This review goes on to identify 12 studies that consider “epistemological development” from a cross-cultural perspective. All studies except one found that culture has a significant impact on epistemological development. All the studies espoused valuing contextualised, relativistic knowledge but used quantitative methodologies. They also only considered a narrow range of cultures using an even narrower age-range of participants.

Introduction

“Both in the most routine encounters with new information and in the most sophisticated pursuits of knowledge, we are influenced by the beliefs we hold about knowledge and knowing.” (Hofer & Pintrich, 2001, p. 4)

These beliefs have been identified using a variety of labels including personal epistemology, epistemological beliefs, ways of knowing, and epistemic cognition. They are activated as we engage in learning and knowing (Muis, 2007). This includes acquiring knowledge in a range of contexts. When perusing the morning paper interpretations are made about the credibility of claims in articles. As professionals, when learning new skills and facing new ideas, interpretations are made concerning their worth. As members of society, discriminations are made between competing claims of politicians as well as issues deemed to be of importance to individuals and the communities in which they reside (Hofer & Pintrich, 2001). This process also occurs in the classroom where vast amounts of new information are presented to students who are expected to assimilate it. Students may approach the learning process from differing perspectives depending on how they view knowledge. For example, some may view knowledge as a set of accumulated facts or as an integrated set of constructs. The role individuals perceive they play in making sense of knowledge; whether they are passive receptors or active constructors, the epistemological theories drawn upon will govern what and how meaning is construed from the information encountered.

“As a philosophical enterprise, epistemology is concerned with the origin, nature, limits, methods, and justification of human knowledge.” (Hofer & Pintrich, 2001, p. 4)

From a psychological and educational perspective, the focus amongst those studying personal epistemology is how the individual develops conceptions of knowledge and knowing and uses them to develop an understanding of the world.

The author aims to consider epistemology, specifically, what affects how individuals view knowledge. In order to do so this review will initially explore, and explain why, epistemology is such a crucial construct and why it merits further study. For the purposes of this review an operational definition of “epistemology” is provided and warranted. It goes on to consider the importance cultural context plays generally and consider whether this may play a role in the development of epistemology. The focus of this review is established and justified before explaining and describing the methodology used to identify the studies that are subjected to in depth analysis. The studies selected are then presented in a tabular form before a discussion of their findings, conclusions and their relevance to educational psychology. Finally, some of the limitations of these studies are identified prior to concluding and identifying any gaps in the literature that may offer possibilities for further research.

Epistemology and its importance

Epistemological positions carry with them assumptions that dictate how meaning is made from the world as it is perceived around us (Becker & Niehaves, 2007). These assumptions are often implicit and are so embedded that an individual may not be explicitly aware of their own epistemological position. Consequently, it can be difficult to appreciate an alternative viewpoint (Becker & Niehaves, 2007). This means that individuals may operate under differing assumptions when viewing knowledge. It can be difficult to comprehend how someone can arrive at a different conclusion when presented with the same information (Fox, 2011).

An example of the effects of these differing world views and epistemological positions can be observed within the inclusion debate. Within this debate fundamentally different positions exist. It could be argued that this reflects a different world view which is why the debate becomes an almost philosophical discussion. Some believe that the merits of an inclusion policy should be measured via an experimental, positivist approach; meaning that if the evidence indicates that an inclusion policy is beneficial and improves learning then it is a policy that should be adopted (Kavale & Mostert, 2003). Others believe that inclusion is a human right and should be extended to all; no matter the effects on the education system (Lindsay, 2007). These two positions do not view this debate, or the knowledge within it, in the same way.

There are studies that have been conducted with the aim of investigating the development of individuals’ personal epistemologies. Piaget first used the term “genetic epistemology” to

describe his theory of intellectual development (Piaget & Duckworth, 1970). This work was continued by Perry (1970); he was interested in how students interpreted pluralistic educational experiences, which led to his theory of epistemological development. Since Perry's (1970) seminal work into this field there have been several research programmes that have examined the thinking and beliefs that surround the nature of knowledge and knowing (Alexander, 1992; Belenky, Clinchy, Goldberger, & Tarule, 1986; King & Kitchener, 2004 1999; Kuhn et al., 1988; Magolda, 1999; Schommer, 1993)

There has been a range of studies using different research programmes and conceptual frameworks to examine learners' epistemological beliefs and thinking. Many have reported a similar developmental pattern to that reported in Perry's work (Belenky, Clinchy, Goldberger, & Tarule, 1986; King & Kitchener, 1994; Kuhn et al., 1988; Magolda, 1999; Schommer, 1993). Perry (1970) proposed that "intellectual and ethical development" can be characterised by nine positions categorised universally into four sequential categories. These are dualism, multiplicity, relativism and commitment to relativism. Magolda (1999) argues that they investigate a concept labelled "reflective judgement" yet this concept is characterised by stages that move from pre-reflective thinking to reflective thinking. Magolda (1999) investigates epistemological reflection which moves from the stage of absolute knowing through to contextual knowing. Schommer (1993) claimed to investigate epistemological beliefs and although she didn't claim that epistemological beliefs develop in a one-dimensional way through fixed stages, she identified four factors that are viewed on a continuum. These factors have a certain familiarity and are fixed ability, quick learning, simple knowledge and certain knowledge.

There are further examples of supposedly different constructs being measured, yet the pattern that is identified is one that moves from a dualistic, "black and white" knowledge base to a view of knowledge that is contextualised and relativistic.

It is this similar developmental pattern displayed in a variety of studies purportedly measuring a variety of constructs that makes it possible to amalgamate these constructs. For the purposes of this review an overarching construct that is labelled as "Epistemology" is defined as;

"The beliefs, values, constructs and prior knowledge which together act as a lens through which we view and filter new knowledge. Consequently, meaning is ascribed to new knowledge that is acquired."

This definition attempts to strike a balance between using the language necessary to act as an overarching construct whilst including specific terminology so that it can still serve as a

working definition. This has also been considered within word count constraints to allow the definition to remain practical.

When considering the studies that have investigated this construct of “epistemological development” it is noticeable that they all seem to be conducted within a similar context. This context is often higher education institutions located within “western” cultures. Consequently, a relevant question is whether the developmental pattern identified is simply a product of the environment which exposes those individuals to specific beliefs, values, constructs and knowledge from which they develop a specific epistemological perspective.

Culture and its impact

Several psychological theories emphasise the importance played by context and the vital role it plays in determining a range of outcomes. Bronfenbrenner's (1979) ecological systems theory emphasises the interrelationship of different processes and their contextual variation (Darling, 2007). Bronfenbrenner (1979) is often credited for drawing awareness to contextual variability and helping to move developmental psychology from “the science of the strange behaviour of children in strange situations with strange adults for the briefest possible periods of time (Bronfenbrenner, p. 19) to more “ecologically valid” concepts such as studying the individual within their environment (Darling, 2007).

Vygotsky’s theory of cognitive development (1986) also emphasises the role culture and social experiences play in cognitive development. Vygotsky believed that all psychological processes are initially experienced within a social context. A young person initially experiences a problem solving process alongside significant others who help to give meaning to experiences. Over time, this process is internalised and eventually the child can problem solve independently.

The role that culture plays in the classroom is well documented. Many books have been authored on the subject (Kottler, 1997; Reynolds & Skilbeck, 1976; Saville-Troike, 1978).

“An American teacher at the foreign language institute in Beijing exclaimed in class, “You lovely girls, I love you.” Her students were terrified. An Italian professor teaching in the United States complained bitterly about the fact that students were asked to formally evaluate his course. An Indian professor at an African university saw a student arrive six weeks late for the curriculum, but had to admit him because he was from the same village as the dean.” (Hofstede, 1986, p. 1)

In cross cultural learning situations four areas have been identified that may cause misunderstanding (Hofstede 1986); the first of which is that there may be differences between the social positions of teachers and students in the two cultures. Secondly, there

may be differences in how relevant the content/curriculum may be in the two cultures. Thirdly, the populations from which the teacher and student are drawn may value different skills. Finally, there may be differences between the expected patterns of behaviour that make up teacher-student interaction.

Focus of this review

Despite the large role both culture and epistemological development play in how we view and make meaning of knowledge there have been relatively few studies that have directly investigated whether any relationship exists between culture and epistemological development, it remains a contentious area which requires further exploration.

A review is useful to identify the range of cultures investigated and if there are any differences or gaps in the literature.

The present review will focus on epistemological differences for learners found across cultures, asking whether cross-cultural differences affect learners' epistemological development. Any cross-cultural differences in epistemological development could provide greater understanding of why some individuals learn in different ways and could potentially have implications for the current education system.

Method

This review employs the systematic method described by Petticrew and Roberts (2008), summarised in Table 1.

1 Clearly define the review question
2 Determine the types of studies needed to answer the question
3 Carry out a comprehensive literature search to locate these studies
4 Screen the studies found using inclusion criteria to identify studies for in-depth review
5 Describe the included studies to 'map' the field, and critically appraise them for quality and relevance
6 Synthesise studies' findings

7 Communicate outcomes of the review

Table 1: The Systematic Review Stages (adapted from Petticrew and Roberts 2006)

Identifying and describing studies: The initial search

To locate the relevant studies, electronic data-bases were searched using a combination of search terms shown in Table 2. Consultation of previous studies (Beck & Fernandez, 1998; Sukhodolsky, Kassino, & Gorman, 2004) and database thesauri (where available) ensured that the universe of appropriate synonyms was included in the intervention, outcome and target population search term categories. The process described by Durlak (2003) was also used to identify additional search terms.

<i>Target population terms</i> Learn* / adolescen* / child* ¹
<i>Outcome terms</i> Epistemological / Epistemic*
<i>Intervention terms</i> Cross cultural Cultur*

Table 2: Showing terms used for the literature search.

The following electronic databases were searched: The British Education Index, ERIC (Educational Resource Index and Abstracts), Medline, Ovid, Web of Knowledge and Scopus. These databases were selected as they were the relevant databases that the university catalogue deemed to cover the broad topic “educational psychology”. A search was also conducted of the philosophical studies database JSTOR. This was to ensure that a wider search would not locate any relevant results. No additional studies were found.

Using the relevant documents identified from the databases a citation search was carried out to locate pertinent studies.

In addition, hand searches of Newcastle University theses were conducted to account for publication bias. The relevant books in the Newcastle University Library were also searched.

All searches were conducted between July 2012 and December 2012.

The inclusion criteria is a set of agreed conditions based on the research question that studies must meet in order to be included in different stages of the review.

The following criteria were used for the initial screening of the studies identified from the literature search.

¹ The * symbol is a wildcard symbol. When searching a database the * symbol can be used to replace 0 or more characters in a term

Participants	Learners of any age
Settings	Any (school, home, clinic, residential). All countries were included
Intervention	The studies that were included had to include a cross – cultural comparison using some direct measure of epistemic development. For the purposes of this study cross – cultural is any study that considers two or more groups or individuals that have distinct cultural differences. This proved to be the most stringent element of the inclusion criteria.
Study Design	In the initial data search a wide array of study designs was included. Both qualitative and quantitative designs would be considered as long as they employed the relevant interventions.
Time, Place and Language	Studies that were reported in English, and completed between 1980 and 2012, although there were no relevant studies carried out prior to 1987

Table 3: The inclusion criteria used for initial screening of the studies identified from the literature search

This process identified 12 studies which met the inclusion criteria.

With only 12 studies being identified the systematic literature review progressed to a detailed description of the studies.

Detailed description of studies in the in-depth review

Studies that met the inclusion criteria were analysed according to study aims and research question(s), study design, methods of analysis and data collection, and outcomes. This information was then summarised in tabular form. This provided a description of each study’s methods, and included information about the following:

Participants	Number and ages (where available).
Element of Epistemological Development	The precise focus of epistemological development i.e. basically the original construct that was under investigation.
Study context	Type of context and the geographical location in which the study was conducted.
Focus	Which two countries/groups were involved and what measure was used.
Design	Whether the study was quantitative or qualitative and the corresponding methodology selected.
Results	If any significant differences between the two populations were found.

Table 4: Showing the criteria that was used to analyse the studies

Table 6 also provides effect sizes, where possible. Some studies provided their own measure of effect size. For others, Cohen’s d was calculated using an online effect size calculator (nCalculators.com, 2013). Some effect sizes were calculated from the original standard deviations and means, others were converted to cohens d from alternative effect size statistics. Cohen’s d is defined as the difference between two means divided by the pooled standard deviation for those means. It was selected over other effect-size

measurements, as its growing popularity is making it the standard (Cole, 2008). Furthermore, it has clearly delineated benchmarks: effect sizes of .20 are small, .50 is medium, and .80 is large (Cohen, 1992). Some studies did not provide enough detail to enable accurate effect size calculation.

Assessing quality of studies and weight of evidence (WoE)

Finally, studies included in the in-depth review were analysed using the EPPI-Centre Weight of Evidence (WoE) tool. The WoE tools considered three criteria in order to make it possible to ascribe an overall quality and relevance to each study in a transparent way (Cole, 2008).

These weights of evidence were based on:

A. Soundness of studies (internal methodological coherence), based upon the study only.
B. Appropriateness of the research design and analysis used for answering the review question.
C. Relevance of the study topic/focus (from the sample, measures, scenario, or other indicator of the focus of the study) to the review question.
D. Overall weight, taking into account A, B and C.

Table 5: Outlining the criteria used in the WoE tool.

Findings

General characteristics of the studies included in the in-depth review

A total of twelve studies were identified and analysed. Table 6 shows that the majority of studies were conducted in the United States (N=7) or in cultures that could be classified as oriental (N=6). The majority of these studies used university or college students as participants (N=9). Most of the studies used questionnaires to gather data (N=11). In all the selected studies the data was subject to a quantitative analysis.

There was also a range of sample sizes (range= 103 - 1,463) used in these studies. The total number of countries investigated was 11, a relatively small number. No study was conducted in the United Kingdom.

An aspect of these studies which did vary was the focus within the overarching construct of “epistemological beliefs” being investigated; consequently, a range of instruments were used. Although using questionnaires can allow access to a large sample there can be problems associated with using questionnaires. It can be difficult to gain information on particularly complex constructs as it does not accommodate dialogue. There can also be a problem with people not taking the time to carefully consider their answers (Robson, 2011). These problems may be compounded when investigating a concept as complicated as epistemological development. There are issues concerning the amount of information provided in some studies. For example some studies have not disclosed how their participants were selected. Few studies justified, other than ease of selection, why university students were selected. (Alexander & Dochy, 1995; Chai, Deng, & Tsai, 2012; Hofer &

Pintrich, 2001; Karabenick & Moosa, 2005; Maggioni, Riconscente, & Alexander, 2006; Sulimma, 2009; Youn, 2000; Zhang, 1999, 2004; Zhang & Watkins, 2001; Zhu, Valcke, & Schellens, 2008).

Weight of evidence

Following the procedures outlined above, judgments about weight of evidence were made for all included studies, together with an overall weight, summarised in Table 7. The synthesis table indicates that nine of the studies were seen as providing medium to high overall weight of evidence (D). In summary, the majority of studies included a relevant subject matter to the one investigated by this review. The main issue however was the use of questionnaires to data gather. Arguably, using questionnaires analysed quantitatively to gather data on such a complex and nuanced construct may provide a simplistic and under developed picture of how individuals view knowledge (Mellor, 1993). Although these studies were carried out within the parameters of survey based investigations there is also an issue surrounding the sample involved in these studies. The vast majority of these studies again used a very specific sample from a small number of higher education institutions. This restricts any possible generalisation of the results.

<u>Study</u>	<u>Participants</u>	<u>Context</u>	<u>Focus</u>	<u>Element of Epistemology</u>	<u>Design/Method</u>	<u>Whether differences were found</u>	<u>Effect Size (d)</u>
Zhang (1999)	N= 1,463 Age= 17-29	Higher Education Institutions in the US and China.	Comparison of the Chinese and US samples to consider any differences in epistemological development.	Used Perrys original theory as the basis of the instrument	A quantitative, questionnaire design methodology that used the Zhang Cognitive Development Inventory (ZCDI)	There were significant differences reported between the Chinese sample and the US sample in their epistemological development	Not enough information is provided to calculate effect size.
Karabenick and Moosa (2005)	N= 382	Higher Education Institutions in the US and Oman.	Comparison of the Oman and US samples to consider any differences in epistemological development.	Used Hofer and Pintrich review concepts as basis for the instrument. Additionally examined their view of scientific epistemology.	A quantitative design methodology that used a questionnaire which had 35 epistemology statements	There were significant differences between the Omani sample and the US sample in their epistemological development	0.4727
Alexander and Dochy (1995)	N= 120 Age = Adults	Adult Learners with varying levels of "expertise"	Comparison of the US and European sample to investigate how the two populations perceived the constructs of knowledge and belief and whether they interacted with one another.	Investigated a narrower element of epistemology, the interaction of the constructs perceived to be knowledge and beliefs.	A quantitative design methodology that used a questionnaire alongside a graphic catalyst to elicit responses from participants.	There were significant differences between the European and American samples in how they believed the concepts of knowledge and beliefs were related.	No inferential statistics were conducted.
Youn (2000)	N= 983	University students from a large	To investigate whether any epistemological	The validation of Jehng, Johnson, and Anderson's	A quantitative study that used the	The conceptual model proposed by Jehng et al was confirmed by factor	0.46028943

		mid-western university in the states and six universities in Seoul.	I differences were apparent between cultures that were identified as collectivist and individualistic. As well as whether this had any links with the construct of self-construal.	(1993) five-dimensional model and the influence of individualism-collectivism on learning beliefs at the individual level.	epistemological beliefs scale, a survey sheet collecting demographic information and the self-construal scale.	analysis. The factor structure of the Korean sample showed significant variability which it is claimed is due to the collectivist nature of their culture.	
Zhang and Watkins (2001)	N= 260	University Students from one American university in the mid-west. The Chinese sample was selected from two universities in Nanjing	To investigate whether there were any differences in epistemology as defined by Perry's scheme between three cultures.	To validate the Perry scheme, using the ZCDI and to examine the relationship between the Zhang Cognitive Development Inventory and the Study Process Questionnaire (considers surface and deep learning)	The measures used in this study contained a demographic questionnaire, the participants' self-rated abilities, academic achievement scores, and two additional inventories, one on learning approaches, and the other, on cognitive development.	There were significant differences between the Chinese sample and the US sample in their epistemological development	Effect sizes from 0.21-0.23
Sulimma (2009)	N=103 Age= 18-77	Adults from both Australia and	Focus on comparing the relationship between two	Based on Schommers interpretation of epistemological	The epistemic beliefs inventory (EBI)	The findings were that the development of epistemological beliefs differs. Although factor	Not enough information is provided to calculate

		Germany participated in this pilot study but there was no information on how these participants were selected.	conceptual frameworks: the concepts of Schommer (epistemological development 1990) and Hofstede and Hofstede (cultural classification)	development.		analysis indicates the same three dimensions of epistemological beliefs for both countries (structure, source, and control), the development for each dimension is different.	effect size.
Chai, Deng and Sai (2012)	N = 397	High School students from Taiwan and China	Focus on comparing two similar cultures	Focus on Scientific Epistemological views	Chinese-version SEV questionnaire (CSEV)	The results indicate that the students from these two localities, which signify two similar yet different cultures, are substantially different on five out of the six dimensions.	0.32-0.84
Maggioni, Riconscente, Alexander (2006)	N= 473	College students in Italy and the US	Comparison of the US and Italian sample to investigate how the two populations perceived the construct knowledge to interact with the construct belief.	Investigated a narrower element of epistemology, the interaction of the constructs perceived to be knowledge and beliefs.	A quantitative design methodology that used a questionnaire alongside a graphic catalyst to illicit responses from participants.	There were significant differences between the Italian and American samples in how they believed the concepts of knowledge and beliefs were related.	No inferential statistics were conducted.
Zhu, Valcke and Schellens (2008)	N= 623	University students in Beijing and	This study asks whether the	This study focuses on the relationship	A structural equation model (SEM) relating	Multiple group analysis using SEM was applied and the structural weights	0.0633-0.7594

		Flanders	relationship between epistemological beliefs and numerous aspects of learning is homogeneous across cultures?	between epistemological beliefs, learning conceptions, and approaches to study	the three concepts was applied to the sample data. So they used Schommer's Epistemological Beliefs Questionnaire (EBQ), The Conceptions of Learning Inventory (COLI) (Purdie & Hattie, 2002) and the short version of the Approaches and Study Skills Inventory for Students (ASSIST) (Tait, Entwistle, & McCune, 1998)	model was confirmed across the two cultural groups. Mean level variations of the three main concepts were detected between the Chinese and Flemish groups.	
Qian and Pan (2002) in Hofer and Pintrich (Eds) (2002)	N= 279 Mean age = 17.2	High School students from the US and China	This study asked, what are the differences or commonalities between American and Chinese students in their beliefs about knowledge and	Investigated epistemological beliefs differences between cultures with particular reference to conceptual change learning.	A quantitative study that used, a refutational text, Epistemological Belief Questionnaire, Goal Orientation Questionnaire and the Prior Knowledge Pre-test and Achievement	The Chinese students in the present study had stronger beliefs about simple and certain knowledge and innate ability to learn than the American students.	Not enough information is provided to calculate effect size.

			<p>ability to learn? Secondly, can refutational text facilitate Chinese students' conceptual change learning as effectively as it did among American counterparts? Finally, how do epistemological beliefs and motivational goals contribute to conceptual change learning among American and Chinese students?</p>		Post-test.		
Kitchener and Wood (1987)	N=48	University Students in West Germany	This study asked whether epistemic assumptions found in the US are unique to that culture.	Epistemic assumptions	A quantitative study that used the reflective judgement interview and the German reflective judgement interview process.	This study found that the scores on the reflective judgement interview and the German reflective judgement interview process were comparable.	Not enough information is provided to calculate effect size.

					This study also used the analogies portion of the Intelligenz Struktur Test to measure verbal ability.		
Zhang and Hood (1998)	N=808	Chinese University students	Study measuring whether Chinese students developed their epistemological assumption in a manner that is consistent with the Perry model.	An inventory modelled on US inventories (ZCDI)	A quantitative questionnaire study which was the first to use a prototype version of the ZCDI.	Found that Chinese students developed their epistemology in a pattern that is the reverse of that of US students.	0.8402

Table 6: Description of the studies methods and outcomes.

Study	A (trustworthy in Terms of own question quality assessment)	B (Appropriate design and analysis for this review question)	C (Relevance of focus to review question)	D (Overall weight in relation to review question)
1) Zhang (1999)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
2) Karabenick and Moosa (2005)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
3) Alexander and Dochy (1995)	Low trustworthiness	Medium trustworthiness	Medium trustworthiness	Low trustworthiness
4) Youn (2000)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
5) Zhang and Watkins (2001)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
6) Sulimma (2009)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
7) Chai, Deng and Sai (2012)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
8) Maggioni, Riconscente, Alexander (2006)	Medium trustworthiness	Medium trustworthiness	Medium trustworthiness	Low trustworthiness
9) Zhu, Valcke and Schellens (2008)	Low trustworthiness	Medium trustworthiness	Medium trustworthiness	Low trustworthiness
10) Qian and Pan (2002) in Hofer and Pintrich (Eds) (2002)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
11) Kitchener and Wood (1987)	Medium trustworthiness	Medium trustworthiness	High Trustworthiness	Medium trustworthiness
12) Zhang and Hood (1998)	Medium trustworthiness	High Trustworthiness	High Trustworthiness	Medium trustworthiness

Table 7: Showing the WoE decisions

Discussion of studies' findings and conclusions

The overall indication from the outcomes of the studies included in this review suggests that how individuals view knowledge is not a universal phenomenon, as was originally indicated by Perry (Perry, 1970; Zhang & Hood, 1998). All the studies except one found significant differences between cultural groups when investigating the overarching construct of epistemological development.

Several studies found a reversal in the pattern first outlined by Perry (1970). Some found a reversed pattern used Perry's theory as the basis for their instruments e.g. the Zhang Cognitive Development Inventory.

The findings of this literature review indicate that cultural differences do occur and are crucial in how individuals perceive knowledge. Not only do these differences exist between what would be commonly perceived as different cultures e.g. China and the United States, they occur between cultures that could be considered similar e.g. China and Taiwan.

There is one result that did not fit with this trend. The Kitchener and Wood study found no significant differences in how individuals view knowledge between German and American (US) university students. There are several possible explanations for this finding. Firstly, the agenda of the authors should not be underestimated. This study was conducted in an attempt to demonstrate that the tool developed by King and Kitchener (The Reflective Judgement Interview Process) was a reliable measure of epistemological development. There are numerous examples of "objective" studies finding results that supported the agenda of those who carried out the study (Fox, 2011). Secondly, the two cultures that were investigated in this study, Germany and the US, were both "westernised" cultures. This similarity could account for the comparable results reported in the Kitchener and Wood study. Thirdly, this study was the earliest included in this literature review. It may be that over time the sophistication of cross-cultural studies that investigate epistemology has increased. This has allowed more recent studies to account for subtleties that the Kitchener and Wood study was unable to measure. Fourthly, of all the studies that were included in the review there was very little information available on the Kitchener and Wood study. There may have been some alternative reason that explains these results but that information is not accessible.

The studies finding a significant difference in epistemologies between two different cultures also made some interesting links with other concepts and constructs. These include self-construal, study skills, goal orientation and cognitive development. This helps demonstrate

the importance that epistemology plays in how we perceive and make sense of the world around us.

A cautionary note at this point is that the studies that have established this link have also established the cultural specificity of epistemological development. It could be argued that there may be increased reason to believe the cultural specificity of the other constructs that have been associated with it.

Likewise, all of the studies included in this literature review have used quantitative measures to investigate the construct of epistemological development. Inherent within quantitative methodologies are the concepts of generalisation and universal constructs that can be accessed through instruments such as questionnaires. It could be considered incoherent that these studies, using this methodology are attempting to emphasise the role that culture and context play in how individuals learn to view knowledge but using a methodology that seeks universal and generalisable data.

Similarly, the studies that investigated epistemology have emphasised the sophistication of contextualised knowledge. They have placed value judgements on “types of knowledge”. Invariably dualistic knowledge has less value placed on it than contextualised, relativistic knowledge. Yet the researchers used methodologies that aim to gain access to dualistic, generalisable quantitative knowledge.

While considering the importance of contextualised knowledge and the role played by culture it becomes relevant that none of the studies within this literature review were conducted in the United Kingdom which is itself a unique culture (McSweeney, 2009).

It could be considered a limitation that in the majority of the studies the participants were either college age or older. The obvious explanation for this is the ease with which researchers can gain access to this population using opportunistic sampling.

In the wider literature there have been studies that investigated the epistemic development of children. When considering this literature whatever the age of the participants; pre-adolescents, adolescents, university students or adults a similar pattern is found in the results (Chandler, Hallett, & Sokol, 2002) i.e. a steady trend where the participants slowly recognise the importance and value of contextualised knowledge.

“The recurrent story goes like this: The youngest of available subjects (whatever their actual age might happen to be), enter stage-left as naïve realists—objectivists at heart, only to shortly find themselves inextricably drawn toward some waiting pit of nihilism. As the plot thickens and sceptical doubts progressively overtake them, these

previously committed foundationalists lose their ability to act on the basis of reason, and so, for a time, remain stupefied and lost in a directionless moratorium where blind intuitionism, or simply doing the done thing, is all that is left of choice. Finally, just before exiting stage-right, the best and brightest among this temporarily dispirited group is shown to come to a new “post sceptical” insight, as some beliefs are recognized as better grounded than are others, and the cautious possibility of rational choice is triumphantly restored. That is the Procrustean bed, and the good news is that one size is argued to conveniently fit all.” (Hofer & Pintrich, 2001, p. 147)

As a result of this thinking a number of studies have set out to establish whether pre-adolescents and adolescents are capable of some level of epistemic thinking (Boyes, 1987; Boyes & Chandler, 1992; Chandler, 1975, 1987; Chandler, Astington, Harris, & Olson, 1988; Chandler, Boyes, & Ball, 1990). For example some of these studies presented young people (12 -18 year olds) with story based problems which contained complex problems and issues that were relevant to them e.g. how old before you were responsible enough to drive. The authors found that more than half their secondary school sample already demonstrated an appreciation of relativized contextual beliefs while up to a third responded in a way that that was irreconcilable with an objectivist, absolutist outlook.

These findings have major implications for the education system. These implications were demonstrated in a study that compared a group of generic adolescents, the majority of whom had already demonstrated some level of relativism with a matched group of adolescents who had been temporarily hospitalised as a result of anti-social and destructive behaviour (Chandler et al., 1990). Three quarters of the hospitalised young people adopted a view of defended realism. Likewise, Beaudoin (1998) found that adolescents excluded from school as a result of chronic antisocial behaviour were characteristically slow to imagine the possibility that different people may legitimately hold different beliefs about the same event. These findings suggest that individuals learn to view knowledge in a particular way much earlier than college age.

There have been two arguments advocated to explain why there is such a wide range of ages that changes in epistemology seemingly occur. First is the argument for the recursive nature of the epistemology (Boyes & Chandler, 1992 Chandler, 1987). It has been hypothesised that children understand the world through construction and revision of their mental models. Consequently, development occurs not just once but repeatedly (Kuhn et al., 1988). It has been estimated that the number of recursions that is likely to take place is two within the ages of 8 and 20 (Chandler et al., 2002). It is suggested that these recursions differ in complexity and that there is an important distinction between them. The first phase

of this recursion has been labelled as “retail” and any doubts surrounding the knowledge received tends to be case-specific. The second is termed “wholesale” and consequently the doubts become more generic and generalisable.

The second argument concerns the nature of the environment to which individuals are exposed. A study that investigated whether the language used in hostile conflict situations by pre-adolescent children claimed to provide insight into how young people learn to view knowledge (Walton, 2000). This study found significant differences between how children and teachers used language associated with epistemology. Teachers in the study used expressions of certainty as indirect commands or threats. Children however, never used these expressions in that manner. Likewise, although teachers used these expressions to issue commands they were rarely used to express their own uncertainty. This infrequent expression of uncertainty was speculated to play a role in the child’s development of culturally dominant common sense theory of knowledge. It was further hypothesised that the children’s experience of epistemic dialogue in the classroom would not encourage them to develop a constructionist epistemology. It was also considered that education in western societies urges children to view knowledge as a set of cumulative facts or truths and that the language used in teacher discourse may help maintain this status quo. A particularly interesting finding was that certain discourse associated with epistemology was most frequent amongst the younger age groups sampled. The youngest children were more likely to engage in dialogue about what something did or did not mean. It was speculated that this early discourse seems to reflect some understanding of the interpretative nature of knowing which then becomes less common as they progress through an education system that is grounded in an objectivist epistemology.

This study (Walton, 2000) only considered interactions that focussed on conflict, perhaps not the most appropriate context to consider epistemology. It is also difficult to draw any robust conclusions from a small number of utterances that were considered in this study. It seemed to make an assumption that observing selected sections of dialogue implied a certain level of epistemological development and understanding. This may not be the case but this remains a possibility that could be considered by future research.

Recommendations for further research, limitations of this review

Future research that could help distinguish between these two explanations, as well as explore the second explanation in more detail, would be a cross-cultural study that considered a pre-adolescent population. It could consider a non-western culture to investigate whether epistemic development is affected if young people are not embedded in an education system upholding a positivist, objective epistemology. The majority of studies

that investigate epistemology have placed value judgements (merited or otherwise) on the categories of knowledge. Invariably contextualised/relativistic knowledge appears to be more valuable than the objective/dualistic knowledge. Yet all the studies selected an objective/positivist methodology. This arguably introduces an element of incoherence into these studies as authors' espoused beliefs do not correspond with their actions (Argyris, 1983). They are using positivist methodologies in an attempt to gain objective knowledge which they espouse as less valuable than contextualised knowledge. Consequently, any future study could consider using a qualitative methodology in an attempt to gather contextualised "valuable" data.

This is associated with a major limitation of this review. As the relevant studies were all conducted using quantitative methodologies it made sense for this review to utilise a similar methodology (Cole, 2008). This methodology has flaws. Particularly, the objective coding and judging of the studies involved in this review assumes that a certain level of objectivity can be achieved; this may not be the case. Likewise, generalisation of the findings from this review to a wider population when the vast majority of the participants utilised in the studies came from a small and specific sample may be unreliable, especially when most of the findings reinforced the concept of cultural specificity.

An additional limitation regards the way in which the studies included were judged. Though some attempt was made to use a transparent system, to attribute a weight of evidence judgment, conclusions are limited by the fact that multiple coders were not used in this process.

Finally, the criticism levelled at many reviews applies to this paper, known as the 'file drawer problem' (Rosenthal, 1979). This suggests that studies which yield significant results are more likely to be submitted for publication and accepted by journals, and studies which do not, are more likely to be neglected. Despite attempting to include theses in this literature review this problem should be acknowledged.

Conclusion

In conclusion, this systematic literature review outlined why epistemology and the culture/context in which individuals are embedded is important. It has attempted to establish that there may be a relationship between culture and epistemology. It then attempted to select relevant studies using a systematic methodology that may clarify this relationship. It was found that in the vast majority of these studies it appeared that an individual's epistemology was affected by the culture in which they were situated. However one limitation and associated assumption was that the samples tended to consist of college students or

older, this was entwined with the assumption that young people were all thought to have a particular epistemological position until this age. Consequently, this review went on to consider the small number of studies that have investigated the epistemology of pre-adolescents and children where similar results were found to those in studies on older participants. This led to considering some explanations for these findings. These explanations prompted some recommendations for future research that could offer clarification. This review has identified a gap in an area of research that will contribute to the body of research on a topic that considers the way in which the world is perceived and consequently how individuals, particularly young people, act in it.

Appendices

Appendix 1 WoE Justification Tables

Appendix 1 WoE justification table

Study	1	2	3	4
Are there ethical concerns about the way the study was done? <i>Consider consent, funding, privacy, etc.</i>	no A questionnaire was used, therefore you don't complete it if you don't want to although there may be possible issues surrounding the gathering of college credits?	no A questionnaire was used, therefore you don't complete it if you don't want to although there may be possible issues surrounding the gathering of college credits	yes There is an impression that all the participants are already involved in academia. But there is not a lot of information about how they gained their participants. Consequently, it is difficult to claim that there are no ethical concerns.	no once again a questionnaire was used but as well as the possible issue of college credits, data withdrawal could also have been a possible issue but this is only speculation.
Were students and/or parents appropriately involved in the design or conduct of the study?	yes a little, not really involved in the design but a bit more in the conduct.	yes a little, not really involved in the design but a bit more in the conduct.	no not as far as I can tell	no it doesn't appear so. They were simply asked to complete the questionnaire.
Is there sufficient justification for why the study was done the way it was?	yes they wanted access to a sample that was as large as possible.	yes they wanted access to a sample that was as large as possible.	yes	yes they wanted access to a sample that was as large as possible
Was the choice of research design appropriate for addressing the research question(s) posed?	no a questionnaire is not the best methodology to measure such a complex construct but I can see they wanted generalisability.	no a questionnaire is not the best methodology to measure such a complex construct but I can see they wanted generalisability I do think the underlying construct for this questionnaire is better than study 1.	yes I thought it was an ingenious concept that allowed participants the freedom to provide their own open ended answers/drawing if they want, so it may not be as prescriptive as questionnaires or as it could seem at first glance.	no a questionnaire is not the best methodology to measure such a complex construct but I can see they wanted generalisability. They also wanted to gain information on the viability of Jehngs model so based the questions on that.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	yes lots of tests were carried out to ensure the reliability and	attempts were made but it's acknowledged that the reliability is lower than	no none that I can tell or that they have reported	yes lots of tests were carried out to ensure the reliability and repeatability of the study.

	repeatability of the study.	desired.		
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	yes it was translated four times between English and Chinese to ensure trustworthiness.	yes some attempt a factor analysis was carried out but there is little information regarding the creation of the questionnaire.	no none that I can tell or that they have reported	yes several translations between Korean and English.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	yes	yes Used a correlation and multiple regression and MANOVA	no not really as they only used descriptive statistics.	the scales have already been used but this was also part of the aim of the study.
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	yes a factor analysis was carried out.	yes a factor analysis was carried out	no not really as they only used descriptive statistics I think.	yes factor analysis and three way MANOVA led to a MANCOVA
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias.	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias.	no as the participants predominantly came from only two institutions this could be a huge source of bias.	no the participants only came from one institution in the US this could be a huge source of bias.
How generalisable are the study results?	Difficult to say as even though there was a large sample it was taken from only a handful of institutions, it was a particularly narrow US sample.	The authors may feel that the results are fairly generalizable but this claim can be questioned as the sample isn't huge.	The participants predominantly came from only two institutions, this could be a huge source of bias. Consequently, generalizing to the wider population seems overly ambitious.	The participants predominantly came from only two institutions, this could be a huge source of bias. Consequently, generalizing to the wider population seems overly ambitious. This is especially the case when combined with the assumptions that link the findings to collectivist and individualistic natures of society are arguably unwarranted,
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	no	No	no	No

Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative even with the use of the self-construal scale.
Weight of evidence A:	Medium trustworthiness The issues around using a questionnaire are too difficult to overcome not only are the samples collected from a handful of institutions only a few individuals from those completed the questionnaire therefore the authors make some ambitious sweeping claims of generalisability.	Medium trustworthiness. The grounds on which this questionnaire is based are arguably well warranted however the manner in which the questionnaire was assembled is still unclear.	low trustworthiness it doesn't appear to have been either carried out in a rigorous manner or otherwise it wasn't reported very rigorously.	medium trustworthiness using a although the samples have only been collected from a handful of institutions the questionnaire seems to have been developed well from Jehngs five point model and the data analysed appropriately.
Weight of evidence B	medium The analysis seems suited to the results gained but the problems with using a questionnaire remain.	medium The analysis seems thorough and suited to the results gained but the problems with using a questionnaire remain.	medium The assessment tools seemed more open ended but the data analysis let it down. This is a difficult balance to reach.	medium The analysis seems thorough and suited to the results gained but the problems with using a questionnaire remain.
Weight of evidence C	high the relevance of this study corresponds very well with this review.	high the relevance of this study corresponds very well with this review	medium as it could be seen to be a slightly altered concept of epistemology.	high the relevance of this study corresponds very well with this review
Weight of evidence D	medium	medium	low	medium

Study	5	6	7	8
<p>Are there ethical concerns about the way the study was done? <i>Consider consent, funding, privacy, etc.</i></p>	<p>no A questionnaire was used, therefore you don't complete it if you don't want to although there may be possible issues surrounding the gathering of college credits?</p>	<p>no A questionnaire was used, therefore you don't complete it if you don't want to although there may be possible issues surrounding the gathering of college credits?</p>	<p>no once again a questionnaire was used but as well as the possible issue of college credits, data withdrawal could also have been a possible issue but this is only speculation.</p>	<p>no once again a questionnaire was used but as well as the possible issue of college credits, data withdrawal could also have been a possible issue but this is only speculation.</p>
<p>Were students and/or parents appropriately involved in the design or conduct of the study?</p>	<p>no it doesn't sound like it, not all really involved at all just asked to complete the questionnaire,</p>	<p>yes a little, not in the design a bit more in the conduct.</p>	<p>no because there was no information provided to inform me on this.</p>	<p>no because there was no information provided to inform me on this</p>
<p>Is there sufficient justification for why the study was done the way it was?</p>	<p>it was really the first attempt to discover whether Perrys theory was universal therefore this study would reveal whether further research was merited.</p>	<p>yes they wanted access to a sample that was as large as possible.</p>	<p>Yes a comparison of western cultures to validate schommers theory and link it with cultural classification.</p>	<p>yes a comparison of similar eastern cultures</p>
<p>Was the choice of research design appropriate for addressing the research question(s) posed?</p>	<p>yes as this was the first study in a series of investigations I can understand why initially a cheap questionnaire that allowed access to a relatively large sample was used. This would establish whether further research was merited.</p>	<p>no Questionnaire is not really best to measure this construct but I can see they wanted generalisability?</p>	<p>no Questionnaire is not really best to measure this construct but I can see they wanted generalisability?</p>	<p>no Questionnaire is not really best to measure this construct but I can see they wanted generalisability of course easy and cheap too.</p>
<p>Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?</p>	<p>yes some attempt was made to test the reliability but as this was the first use of the ZCDI some issues may have remained that were ironed out in later versions.</p>	<p>yes lots of tests reported, cronbach alpha etc.</p>	<p>no none, not given any information that would indicate there were any tests carried out although it may be a more established questionnaire that has had this work done already.</p>	<p>yes Rotated factor loadings (standardized estimates), Cronbach's alpha values, construct reliability, and discriminant validity for the six subscales of the CSEV</p>
<p>Have sufficient attempts been made to</p>	<p>yes some attempt was made to</p>	<p>yes four times between</p>	<p>yes some the German</p>	<p>Yes</p>

establish the validity or trustworthiness of data collection tools and methods?	test the reliability but as this was the first use of the ZCDI some issues may have remained that were ironed out in later versions.	English and Chinese	translation was worked on by a group of psychologists.	
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	yes	yes	yes detailed info on the factor analysis is available which led to the mann-whitney U test.	Yes
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	yes	yes factor analysis etc.	yes factor analysis etc.	yes factor analysis etc.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias	no as a questionnaire was the chosen methodology it is very difficult to rule out other possible sources of bias.
How generalisable are the study results?	Difficult to say as even though there was a large sample it was taken from only a handful of institutions, it was a particularly narrow Chinese sample.	Difficult to say as even though there was a large sample it was taken from only a handful of institutions, it was a particularly narrow US sample.	It is difficult to ascertain as it depends on the accuracy/reliability of the cultural classification.	As they are focusing on similar cultures and they have demonstrated differences exist consequently, it would be very difficult to generalize beyond those cultures. The findings may be generalizable within those cultures?
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	no	no	no	No
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can	medium as there are the trad problems with questionnaires I am also unsure of the use of the cultural classification system.	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative

		only ever be speculative		
Weight of evidence A:	Medium trustworthiness For me the issues around using a questionnaire are too difficult to overcome not only are it from a handful of institutions only a few individuals from those completed the questionnaire therefore I don't think the author can make such sweeping claims of generalisability based upon this. But it probably merits further investigation.	Medium trustworthiness For me the issues around using a questionnaire are too difficult to overcome not only are it from a handful of institutions only a few individuals from those completed the questionnaire therefore I don't think the author can make such sweeping claims of generalisability based upon this. But it probably merits further investigation.	medium trustworthiness still problems using questionnaire but otherwise the findings seem to answer the research question.	medium trustworthiness still problems using questionnaire but otherwise the findings seem to answer the research question.
Weight of evidence B	medium The analysis seems suited to the results gained but the problems with using a questionnaire remain.	medium The analysis seems suited to the results gained but the problems with using a questionnaire remain.	medium The analysis seems suited to the results gained but the problems with using a questionnaire remain.	medium The analysis seems suited to the results gained but the problems with using a questionnaire remain.
Weight of evidence C	high the relevance of this study corresponds very well with this review.	high the relevance of this study corresponds very well with this review.	high the relevance of this study corresponds very well with this review.	medium as it focusses on the slightly narrower area of purely scientific epistemological views which to me seems like just looking at one half of the coin.
Weight of evidence D	medium	medium	medium	Low

Study	9	10	11	12
<p>Are there ethical concerns about the way the study was done? <i>Consider consent, funding, privacy, etc.</i></p>	<p>yes there is a an implication that the participants were all already involved in academia. But not provided with a massive amount of info about how they gained their participants.</p>	<p>No not really as per usual it was a questionnaire which makes issues of consent and anonymity easier to complete in general but without knowing more about the specific circumstances in which the questionnaires were administered its hard to say for certain, again possible issues around right to withdraw but because this info generally isn't included its only really speculation.</p>	<p>Yes Potential ethical issues as it sounds like the participants were misled concerning the true nature of the study.</p>	<p>No obvious issues that are talked about but not a lot of information provided. I am assuming there were no issues, partially because it was an interview process opposed to a questionnaire.</p>
<p>Were students and/or parents appropriately involved in the design or conduct of the study?</p>	<p>no – not as far as I can tell</p>	<p>no – not as far as I can tell, but whether you deem this as a necessary criteria may well depend on your epistemological stance and that wouldn't be associated with the epistemological position associated with most of the studies in this review.</p>	<p>no – not as far as I can tell, but whether you deem this as a necessary criteria may well depend on your epistemological stance and that wouldn't be associated with the epistemological position associated with most of the studies in this review.</p>	<p>a little, the participants weren't really involved in the design of the study but as interviews were conducted I imagine the participants participated in more dialogue during the study than when questionnaires were used.</p>
<p>Is there sufficient justification for why the study was done the way it was?</p>	<p>yes</p>	<p>yes in terms of their background theory and linked concepts</p>	<p>yes in terms of their background theory and linked concepts</p>	<p>yes I also believe there is more justification for conducting an interview than using a questionnaire. There is also a good coherence in the way the study was conducted.</p>
<p>Was the choice of research design</p>	<p>yes I thought it was an ingenious</p>	<p>yes in terms of their</p>	<p>As always I would have</p>	<p>yes finally a study that used</p>

appropriate for addressing the research question(s) posed?	concept that allowed participants the freedom to provide their own open ended answers/drawing if they want, so it may not be as prescriptive as questionnaires or as it seems at first glance. As well as questions	background theory and linked concepts the questionnaires they used seemed appropriate as well as the SEM.	preferred interviews to questionnaires but otherwise it seems appropriate.	interviews to gather data on this topic. This allows important dialogue to take place.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	yes some, the authors mention that this tool has been recognised as reliable in previous studies	Yes lots of tests reported to verify the reliability, modifications were made of the initial model where appropriate.	yes some, the authors mention that this tool has been recognised as reliable in previous studies and the translations were verified by the authors who were native speakers.	yes some the American reflective judgment interview as been adapted and altered over the years to be an accurate and reliable tool. The German reflective judgment interview may not have been subject to the same rigor and it's not as simple as simply translating the existing tool.
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	yes some, the authors mention that this tool has been recognised as valid in previous studies	yes back and forth translations were employed as well as two of the authors being native speakers to help.	yes some, the authors mention that this tool has been recognised as valid in previous studies	yes some the American reflective judgment interview as been adapted and altered over the years to be an accurate and reliable tool. The German reflective judgment interview may not have been subject to the same rigor and it's not as simple as simply translating the existing tool.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	no not really as they only used descriptive statistics I think.	I don't think so but not massively sure as they were trying to use a SEM so I suppose that the data analysis is only suitable If your trying to use that	yep simple T tests and multiple regressions are repeatable enough.	High inter-rater reliability and agreement was found

		model and otherwise its probably not repeatable.		
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	no not really as they only used descriptive statistics I think.	It does appear trustworthy but don't really know about the tests used to say for sure.	yes simple T tests and multiple regressions are trustworthy and valid in this case.	yes ANOVA were used correctly to analyse the data.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	The participants predominantly came from only two institutions this could be a huge source of bias so no	Once again the participants predominantly came from only two institutions this could be a huge source of bias so no	Once again the participants predominantly came from only two institutions this could be a huge source of bias so no particularly the Chinese institution is a highly competitive school for the elite	the participants were obviously allocate to their groups on cultural grounds and the way the interviews were conducted were sound, however once again the German participants only came from one university.
How generalisable are the study results?	The participants predominantly came from only two institutions this could be a huge source of bias so I don't think you can generalize to two countries.	Once again the participants predominantly came from only two institutions this could be a huge source of bias	The participants predominantly came from only two institutions this could be a huge source of bias so I don't think you can generalize to two countries. particularly the Chinese institution is a highly competitive school for the elite	As the German participants only came from one university I would once again be reluctant to generalise. Considering the lack of information about participant results I would also be reluctant to generalise.
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	no	no	no	no not on the very limited information I have available.
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can only ever be speculative	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can	medium trustworthiness The conclusions are transparent and warranted but as they are such sweeping cultural generalisations they can	low trustworthiness no not really we just have to take the authors word for it.

		only ever be speculative especially from only two institutions.	only ever be speculative especially from only two institutions.	
Weight of evidence A:	low trustworthiness it doesn't appear to have either been done very rigorously or reported very rigorously.	medium trustworthiness	medium trustworthiness	medium trustworthiness, not a lot of information available.
Weight of evidence B	I like the assessment tool as it seemed more open ended for this review but the data analysis let it down, but I appreciate you can't have it both ways.	yes it's an appropriate assessment tool but I will never say high for a questionnaire. Why not interviews I know it's less generalizable but you can't generalise from two institutions anyway and the data would be much richer, you could still code it quantitatively	yes it's an appropriate assessment tool but I will never say high for a questionnaire. Why not interviews I know it's less generalizable but you can't generalise from two institutions anyway and the data would be much richer, you could still code it quantitatively.	high as they used an interview even though it was analysed quantitatively.
Weight of evidence C	medium as it could be seen to be a slightly altered concept of epistemology	high relevance with this review	high relevance with this review	high relevance with this review
Weight of evidence D	low	medium	medium	medium

Appendix 2 List of concepts involved for tabular table taken from Hofer and Pintrich (1997)

Perrys Scheme

Perry's scheme of intellectual and ethical development postulates an ongoing, qualitative reorganization of the making of meaning. Although levels in the scheme are designated as "positions" rather than stages, and Perry makes no claims for this as a formal developmental process, the scheme itself and the inherent developmental mechanisms share much with other Piagetian-type developmental schemes. The positions appear to represent an invariant sequence of hierarchically integrated structures. Change is brought about through cognitive disequilibrium; individuals interact with the environment and respond to new experiences by either assimilating to existing cognitive frameworks or accommodating the framework itself. The nine positions of the scheme have typically been clustered into four sequential categories (Knefelkamp & Slepitzka, 1978; Kurfiss, 1988; Moore, 1994): dualism, multiplicity, relativism, and commitment within relativism.

Hofer and Pintrich Review Concepts

We propose that these two general areas represent the core structure of individuals' epistemological theories. Within these two general areas of nature of knowledge and nature of knowing, we suggest that there are two dimensions each, providing four dimensions of epistemological theories. Under nature of knowledge we suggest that there are two dimensions: certainty of knowledge and simplicity of knowledge. Within the area of nature of knowing we propose two other dimensions: source of knowledge and justification for knowing. The aspects we have excluded are not represented in many of the models, and some of those aspects are less clearly epistemological in nature. We hypothesize that these four dimensions should be considered the core of an individual's theory.

The Reflective Judgement Model – Kitchener and King

The reflective judgment model consists of seven qualitatively different stages that describe how individuals perceive and reason about ill-structured problems. Throughout each of the reflective judgment stages, the focus is on both the individual's conception of the nature of knowledge and the nature or process of justification for knowledge. The model was pilot tested and refined, beginning in the late 1970s, through both cross-sectional and longitudinal studies. A central contribution of the scheme is the theoretical elaboration of the structural and epistemological aspects of the upper levels of Perry's original scheme. Construction of these upper stages was initially guided by reviews of a broad range

of work on reflective thinking and ego, social, and epistemological development (Broughton, 1975; Dewey, 1933, 1938; Harvey, Hunt, & Schroder, 1961; Lakatos, 1970; Loevinger, 1976; Popper, 1969). Within the seven-stage model proposed by King and Kitchener (1994) there are three levels : pre-reflective (Stages 1, 2, and 3), quasi-reflective (Stages 4 and 5) and reflective (Stages 6 and 7).

Epistemological Beliefs – Schommer Atkins

Interested in how epistemological beliefs influence comprehension and academic performance, Schommer (1990, 1993b; Schommer et al., 1992) has developed a research program that is more quantitative than that of her predecessors and takes a more analytic view of the components of beliefs. Her examination of conflicting results in other work that attempted to tie Perry's scheme to metacomprehension (Ryan, 1984b) led her to challenge the notion that epistemological beliefs were unidimensional and developed in fixed stages. She proposed a belief system made up of five more or less independent dimensions, which she hypothesized as structure, certainty, source of knowledge, and control and speed of knowledge acquisition.

Jehng, Johnson and Andersons Five Dimensional Model

Jehng et al. adopted Schommer's model by replacing the simple knowledge with orderly process, arguing that orderly process is a broader concept than simple knowledge. Orderly process involves not only the content but also the acquisition process of simple or complex knowledge. The framework used in Jehng et al.'s study consists of the following five dimensions: (a) Certainty of knowledge: knowledge is more likely to be certain and unchanging rather than tentative and unpredictable. (b) Omniscient authority: knowledge is handed down by teachers and other experts rather than formed by independent reasoning. (c) Orderly process: the learning process tends to be regular rather than irregular. (d) Innate ability: the ability to learn is innate rather than acquired. (e) Quick learning: learning is an immediate rather than a slow process of accumulating knowledge. (labeled from naive perspective, Jehng, et al., 1993, p. 26)

Appendix 3 Glossary of terms

Objective, absolutist outlook – This is an epistemological position that implies the search for objective and absolute rules that can be applied universally. Characterised by the belief that knowledge exists and it is possible to access this in a objective way.

Defended realism - An epistemological position coined by Boyes and Chandler (1992). This position was initially thought of as a transitional phase in the development of an adolescent's epistemology. This position is characterised by the individual coming terms with multiplistic viewpoints arising from one source of information.

Constructionist epistemology – This is an epistemological position characterised by the belief that knowledge is socially constructed and as such it is politically, socially and historically contextual. As knowledge is socially constructed it is impossible to access it without all bias and previous experiences having impact on how that knowledge is viewed.

**A Bridging Document to Contextualise my Systematic Literature
Review and Empirical Research**

Abstract

This bridging document aims to contextualise both my systematic literature review and my empirical research. This is done by considering numerous issues that due to word constraints were unable to be considered in these documents. I explain my own personal motivation for this research. I then go on to discuss the rationale for the choice of terminology I have used as well as clarifying other issues around epistemology; specifically, explaining the deductions and inferences I made around other people's epistemological positions. I subsequently explain why an Educational Psychologist is ideally positioned to facilitate the empirical research.

Introduction

My own personal stories have played a role in my decision to investigate this research area. My interest in cultural differences stems from my time spent in Australia where I was privileged to be able to work with people from the aboriginal culture. As my understanding of their culture grew I was able to increasingly comprehend how what originated as different cultural viewpoints had developed at best, into serious cultural misunderstandings and at worst into outright hostility and prejudice. This gave me a valuable insight into how cultural differences, if handled inappropriately, can lead to damage that will be very difficult to repair.

My interest in epistemology is a result of a more recent experience. I am completing an Educational Psychology Doctorate. As a result of this position I have been exposed to knowledge that I was previously unaware of. Crucially, I was exposed to this knowledge in an environment that allowed me to explore this information in a safe way and encouraged me to question my own assumptions and those made by others. This has resulted in me experiencing my own epistemological journey which I feel has altered the way that I view knowledge and the world around me. It is this journey that has stimulated my interest in epistemology generally.

I think that epistemology is an essential area for research. I believe that how people view knowledge has practical implications for a wide breadth of areas including the English education system. In my research I have aimed to explore whether epistemological differences may manifest as a result of culture. Throughout my work there were many peripheral but important issues that due to word constraints I was unable to consider directly. The aim here is to consider those relevant issues. Many concern the complex construct that is epistemology.

Firstly, I will explain the rationale behind my choice of terminology. I go on to discuss epistemology more generally. I follow this by clarifying and warranting the deductions and

inferences I have made throughout the research around other individuals' epistemological positions. I then explicitly consider a number of factors that aim to contextualise my research; before going onto discuss why I believe an Educational Psychologist is ideally positioned to carry out such research.

Explaining my Terminology

I spent a great deal of time attempting to decide on the most appropriate terminology to use when describing and discussing the complicated construct of epistemology. This choice was difficult for two reasons. Firstly, epistemology as a construct has been given numerous labels and discussed with a great deal of variation using different research programmes and conceptual frameworks (Alexander & Dochy, 1995; Belenky et al., 1986; Hofer & Pintrich, 2004; Karabenick & Moosa, 2005; Perry, 1970; Schommer, 1990; Sulimma, 2009; Zhang & Watkins, 2001). Secondly, perhaps inevitably my understanding and growing lexicon that I initially used to discuss epistemology had been influenced by the terminology and content of previous research that I had considered (Alexander & Dochy, 1995; Belenky et al., 1986; Hofer & Pintrich, 2004; Karabenick & Moosa, 2005; Perry, 1970; Schommer, 1990; Sulimma, 2009; Zhang & Watkins, 2001). One particularly problematic example was that much of the previous research referred to epistemology "developing". Initially, I simply refined and operationalised "epistemological development" as a concept; in line with the previous research. I then realised however that this terminology had implications associated with the value judgements that this research had placed on a number of epistemological positions (Hofer & Pintrich, 1997; Kuhn et al., 1988; Perry, 1970; Schommer, 1993). For that reason I abandoned the term development and wanted to replace it with 'epistemology'. Unfortunately however, using epistemology was not always appropriate in every context. Consequently, I also use the terms "process of knowing" and "viewing knowledge". These terms are meant to be used interchangeably with epistemology throughout the course of the research. I wish to note at this point that I am aware that it could be argued that epistemology does not equate directly with "viewing knowledge and the process of knowing". I believe however that any slight disequilibrium was preferable to implying that I was making any such value judgement about epistemological positions.

Epistemological Perspectives

In my research I frequently discuss epistemology but tend to discuss only two specific epistemological stances, positivism and social constructionism (Hibberd, 2001). I do not mean to imply that these are the only two epistemological positions. I am aware that there is a wide range and it is not simply a case of either positivism or social constructionism. There are however reasons why I only refer to these two positions directly. I view positivism and

social constructionism as existing on either end of a spectrum on which the construct of epistemology sits. One end of this spectrum is characterised by an objective way of knowing and the other end by a subjective way of knowing (Fitzgerald & Cunningham, 2002; Goles & Hirschheim, 2000; Rowley & Robinson, 2007). Consequently, all the available epistemological positions sit somewhere on this spectrum. There are therefore many overlapping positions; not discrete categories. Some of these positions include; Empiricism, Hypothetico–deductivism, Critical Realism, Phenomenology, Contextual Contextualism and Radical Relativism (Fitzgerald & Cunningham, 2002; Njihia, 2008; Stahl, 2007). In order to demonstrate my argument I have attempted to list these positions moving along the spectrum from objective ways of knowing through to subjective knowing. The second reason that I refer exclusively to positivism and social constructionism in the research is that these are arguably two of the most commonly discussed positions in wider literature (Bredo, 2006; Burr, 1995; Fitzgerald & Cunningham, 2002; Gergen, 1999; Mattes & Schraube, 2004; Njihia, 2008; Olssen, 1993; Shank, 1994; Stahl, 2007).

Inferring Epistemological Positions

I want take the opportunity to clarify concerns about certain assumptions that I have made regarding other people's epistemological positions. As previously mentioned epistemology is undoubtedly a complicated construct that many individuals are not aware of. Consequently, when engaging in the empirical research I did initially contemplate attempting to explain and deconstruct epistemology to the young people I was working with. After lengthy deliberations I decided that given the age of the young people, the limited time I would have working with them and the use of an interpreter, it would be best that I inferred epistemological positions. As I was inferring these positions it would have been difficult to use a greater range of epistemological assumptions.

Consequently, I made assumptions regarding whether the thinking the young people exhibited was approximately closer to positivism and objective knowing or social constructionism and subjective knowing. Those assumptions linked the characteristics identified in the Hofer and Pintrich review (1997) with more common epistemological labels.

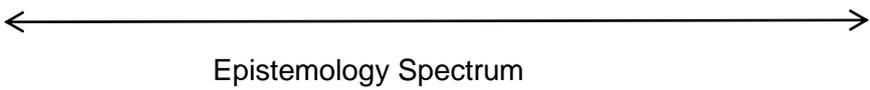
<u>Nature of Knowledge</u>	Positivist Social Constructionist 	
Certainty of Knowledge	Knowledge is fixed	Knowledge is fluid
Simplicity of Knowledge	Knowledge is discrete and concrete	Knowledge is relative and contingent
<u>Nature of Knowing</u>	Positivist Social Constructionist 	
Source of Knowledge	Knowledge exists outside of self	We make meaning of knowledge
Justification for Knowing	Knowledge is dualistic	Acceptance of the multiplistic nature of knowledge

Table 8: Showing common labels for epistemological perspectives mapped onto the Hofer and Pintrich (1997) review concepts

When interviewing and co-constructing stories with the young people I asked questions that were designed to tap into the constructs identified by Hofer and Pintrich (1997). The stories that were generated allowed me to identify aspects of thinking that were located at an approximate point on the epistemological spectrum. This is how I chose to infer, deduce and warrant a variety of epistemological thinking.

I also think it important to emphasise the need for a spectrum based approach not discrete categories. It is not a case of one epistemological position or another. We can all exhibit multiple selves which are contextually dependent and associated with multiple epistemological viewpoints (Cooper, 1999). I only wanted to highlight that young people from the Czech Roma background displayed some thinking that is consistent with a social constructionist epistemological position. I believe it is of importance that this viewpoint exists or is capable of existing given the right questioning despite an education system heavily skewed towards an alternative epistemological position.

Why an Educational Psychologist is ideally positioned to facilitate this research.

I think that Educational Psychologists (EPs) are arguably ideally positioned to investigate epistemology. This is because they are reflective practitioners who draw on research in their practice and can be aware of the importance of epistemology (Moore, 2005). I would argue that this perspective allows an insight which reveals an English education system that over

emphasises a positivist epistemological stance located firmly in the positivist paradigm. This positivist paradigm can be characterised by a reliance on empiricism, objectivity, determinism and essentialism (Kincheloe & Weil, 2001). I feel that an important distinction needs to be made at this point. That distinction is that I am not asserting there is anything inherently wrong with the positivist paradigm. The positivist paradigm has provided/stimulated much progress in many fields. I would argue that the problem is the almost exclusive reliance on this positivist paradigm (Kincheloe & Weil, 2001). I would argue that the almost exclusive use of any one paradigm within the education system would be detrimental. This reliance can be evidenced by both the content and the form of teaching in the British education system (Elkind, 2004; Kincheloe & Weil, 2001; Larochelle, Bednarz, & Garrison, 1998; Littledyke, 1996). Teachers still rely on what is essentially a transmission based learning model (Glevey, 2006; Vithal, 2000). This transmission model relies on teachers possessing the power and authority in the classroom simply by virtue of having that role. This, combined with the content of these lessons, frequently emphasises the importance of the “right answer” above all else (Kincheloe & Weil, 2001).

This teaching approach is not only used in science lessons but can also be observed in subjects such as Religious Education, English Literature and History. I would question the appropriateness of a teaching approach rooted firmly in the positivist paradigm (Elkind, 2004; Kincheloe & Weil, 2001; Littledyke, 1996) when considering these more “subjective” topics. As a result of current legislation being favoured by the coalition government this trend towards a transmission model of learning is going to increase. As Brian Lightman, general secretary of the Association of Teachers and College Leaders, explains

“the changes were harking back to a bygone era: Creating one un-tiered examination for all students, from those with learning difficulties to potential Oxbridge candidates”.
(Adams, 2013)

Another example of this increasing trend is the recent publication of league tables that reflect success in five subjects: English, maths, science, a modern foreign or ancient language and a humanity, which comprise the ‘English Baccalaureate’ (Perryman, Ball, Maguire, & Braun, 2011).

I would argue that this almost exclusive use of the positivist paradigm in education today has far reaching implications. For example, associated with this positivist paradigm are assumptions around essentialist views of human nature, within-child deficits and that there is often “a right answer” and feed into an individualistic cultural viewpoint (Kincheloe & Weil, 2001) (Stead, 2004). These assumptions spread outside of the classroom and play a part in how knowledge is routinely viewed (Chandler et al., 2002). That is not to argue that a

positivist paradigm should be completely abandoned I would only advocate a more balanced epistemological perspective. Consequently, I would not argue for an education system that is as equally one sided based in a constructionist paradigm. For me it is important to have a balance. This balance belies an important message, which is that it is important to be able to recognise that individuals who think in different ways all have something valuable to offer.

Ontological and Theoretical Framework

It is important that I outline my ontological stance for three reasons.

- Firstly, it is important to explain my ontological world view as it is the context for my epistemological stance and in turn the context for my methodology.
- Secondly, it ensures coherence as my social constructionist epistemological stance emphasises the importance of context and viewing knowledge within its context. Therefore it is fundamental that I provide the context in which this study was carried out, particularly the ontological stance of the researcher.
- Finally, it is relevant as it provides an insight into my interactions and the nature of my interviews with the young people with whom I co-constructed stories.

Ontology is a complex construct to define but it has been described as a view of the world that “postulates what is ultimately real and fundamental” (Slife & Richardson, 2008). Ontology is essentially the study of beliefs about the nature of reality and how we consequently view the world (Denzin & Lincoln, 2000; Shadish, Cook, & Campbell, 2002). My own ontological perspective is relational. This relational ontological perspective emphasises the important of context and assumes that the meaning in any given situation is derived from the context. This context includes a temporal perspective which acknowledges that the meaning of any given interaction can shift across time (Slife & Richardson, 2008, p. 4).

In accordance with my relational ontological perspective and social constructionist epistemological perspective and to ensure the coherence of this piece of research I am basing the methodology on a dialogic theoretical framework (Barrow, 2010; Linell, 2007; Thompson, 2011). This should also illustrate and provide an understanding into the nature of my interviews with the young people.

Bakhtin (1984) is widely recognised as one of the early, seminal thinkers in the broad field that has become “dialogics” (Bakhtin, 1984; Salgado & Clegg, 2011). Bakhtin’s notions on dialogism were based in his denunciation of a monological worldview (Bakhtin, 1984; Todorov, 1984). He advocated that

“truth is not born nor is it to be found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction.” (Bakhtin, 1984, p. 110)

Bakhtin’s views on dialogue have been subject to robust scrutiny and consideration (Cresswell, 2011; Salgado & Clegg, 2011; Wegerif, 2008) particularly by stakeholders in the field of education (Cazden, 2001; Cooper, Chak, Cornish, & Gillespie, 2013; Wegerif, 2011).

Bakhtin explained his views on dialogue reflecting on the role it plays in the classroom (Cooper et al 2013). He differentiated between authoritative discourse and internally persuasive discourse. Bakhtin characterised authoritative discourse as being infused with authority but the information is only transmitted and demands our unconditional allegiance (Skidmore, 2000). Bakhtin provided traditional “pedagogical dialogue” as an example of this “authoritative discourse” and it is described as “someone who knows and possesses the truth instructing someone who is ignorant of it and in error” (Bakhtin, 1984, p. 110).

Whereas internally persuasive discourse is described as “affirmed through assimilation . . . enters into an intense interaction, a struggle within us for hegemony among various available verbal and ideological points of view, approaches, directions and values . . . not finite, it is open” (Bakhtin, 1984, p. 346). Internally persuasive dialogue has “a semantically open structure, tending not towards convergence on a single agreed standpoint, but towards a recursive process of intersubjectively accomplished understanding” (Skidmore, 2000, p. 293). During this piece of research I attempted to facilitate internally persuasive dialogue with the young people and avoid pedagogical/authoritative discourse wherever possible.

Having provided the ontological context of this study I will now go on to briefly provide an insight into my epistemological stance which is of couched within my ontological viewpoint as explained above.

Epistemology can be considered subtly different from ontology. I view ontology as defining what is “real” and is essentially how we view the world. Whereas epistemology has a narrower focus; epistemology can be considered to be the study of knowledge. My epistemological stance is social constructionism. This viewpoint emphasises that knowledge is historically and cultural specific, sustained by social processes, anti-essentialist, and that language plays a fundamental role in how knowledge is viewed (Burr, 1995; Gergen, 1999). Consequently, this was the view of knowledge that I adopted during my interviews with the young people who are participated in this research.

It is precisely because of my ontological and epistemological perspectives that it is necessary that they are explicitly discussed. The importance of context is emphasised therefore it is crucial that the theoretical and ontological context are made explicit. Without this contextual understanding the impact of any conclusions would be difficult.

Conclusion

In conclusion, I have attempted to clarify a number of issues that I believe to be important and that arose as a result of me explicitly discussing such a complicated construct as epistemology. This bridging document has aimed to address issues that arose as a result of conducting my systematic literature review and empirical research. I have also aimed to clearly explain and warrant how my systematic literature review has led to my empirical research. My literature review identified that culture does play a role in epistemological development. All the research that I considered in my literature review only considered a small number of cultures, using an even smaller age range of participants as well as all using a quantitative methodology despite espousing to value contextualised relativistic knowledge. Consequently, my empirical research needed to investigate a culture that has not been previously considered. I also wanted to use a qualitative methodology which is consistent with my own epistemological position. I did however decide to abandon the term “epistemological development” as I did not agree with the implicit value judgement implied by this term. Instead I used a theoretical framework identified in previous literature. This framework uses the terminology understanding knowing and viewing knowledge. I also wanted to consider a younger age range for the participants than those in the systematic literature review. These criteria led to the following research question; how do Czech Roma children understand the process of knowing and view knowledge?

**How do Czech Roma children understand the process of knowing
and view knowledge?**

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How do Czech Roma children understand the process of knowing and view knowledge?

Abstract

This research investigates the stories that Czech Roma young people tell in relation to how they understand the process of knowing and view knowledge. This was done to gain an insight into their epistemological positions and the associated thinking that characterises these positions. Consequently, narrative inquiry is used to co-construct the views of eight Czech Roma young people on how they understand knowing and view knowledge. These views were co-constructed in unstructured interviews using questions based on topics in previous literature that allowed the young people and me to co-construct their views on these issues. This information was then transcribed and subject to three-dimensional re-storying analysis. The interviews generated a number of ancillary narratives as well as some possible cultural narratives around how these young people understand knowing and view knowledge. Interestingly, they did at times appear to view knowledge in a way that is consistent with a social constructionist perspective. The implications of these findings are then discussed particularly in relation to an education system that is becoming increasingly reliant upon a positivist paradigm.

Introduction

“...once a story is told, it cannot be called back. Once told, it is loose in the world. So you have to be careful with the stories that you tell. And you have to watch out for the stories that you are told” (King, 2003, p. 10)

In essence stories are the means by which we perceive and recount our experiences in life as well as a means of communication. They are a way in which we view the world and our experiences in it (Howard, 1991).

“We live by stories, we also live in them. One way or another we are living the stories planted in us early or along the way, or we are also living the stories we planted – knowingly or unknowingly – in ourselves.” (King, 2003, p. 153)

The stories we tell will inevitably be influenced by our epistemological perspective (Hofer & Pintrich, 2004). That is the first reason why constructing stories is the logical medium to investigate epistemology. The second is that narrative inquiry as a methodology is well suited to gain an insight into more subtle cultural narratives (Connelly & Clandinin, 1990). Finally, narrative inquiry is a methodology that is coherent with my own epistemological perspective; social constructionism. Narrative Inquiry can be considered to be the gathering

of analysis of stories people tell to make meaning of their lives (Wertz et al., 2011). This stance is useful because it can take into account cultural differences and specificities and not universal generalisations (Clandinin, 2007). It values contextualised knowledge and these are concepts central to this research.

I would argue that cultural narratives are a category of story told by individuals. They are embedded in and are a result of cultural norms. Understanding these stories is helpful in a general sense; to maximise tolerance and minimise misunderstandings within our multi-cultural society (Kalin, 1986; LeBaron & Abu-Nimer, 2003; Taylor, 1990). Considering the narrower field of education, the role of culture is already well established (Hofstede, 1986; Kottler, 1997; Reynolds & Skilbeck, 1976; Saville-Troike, 1978). In the narrower still field of epistemology there is increasing evidence to suggest that culture plays an important role in how knowledge is viewed (Alexander & Dochy, 1995; Chan & Elliott, 2004; Karabenick & Moosa, 2005; Maggioni et al., 2006; Sulimma, 2009; Zhang, 1999, 2004; Zhang & Hood, 1998; Zhang & Watkins, 2001; Zhu et al., 2008). Consequently, I wanted this research to investigate what role, if any, cultural narratives play in how knowledge is viewed.

For the purposes of this research epistemology is defined as

“The beliefs, values, constructs and prior knowledge which together act as a lens through which we view and filter new knowledge. Consequently, meaning is ascribed to new knowledge that is acquired.” (Scott, 2011)

Having established the focus of this research I will continue by outlining the reasons I chose to investigate Czech Roma children. I will then describe the methodology I used before considering some of the stories that were co-constructed. The wider implications of these stories will then be discussed.

Selecting the appropriate cultural group

Three elements were considered. Firstly, ethicality, I wanted to provide a voice for a community whose own voice may be undervalued, who may be victims of prejudice and negative stereotypes. Secondly, philosophy, as I felt it was important to try to gain an insight into a culture that would be useful for the school in which I was carrying out this research. It was important the culture may have different values and perspectives to the White British culture. The final element that I considered was pragmatics, given the financial and temporal scope of this investigation it was important to select a culture that I would be able gain access to. In trying to meet the above conditions I thought that the cultural group that fulfilled the above criteria was the Czech Roma. I used narrative inquiry methodology to interview eight year 5 children. This was done to co-construct narratives using an unstructured

interview allowing the stories to evolve organically. Year 5 children were selected because I wanted the children to be as young as possible while still able to co-construct relevant narratives and understand what is a complicated construct.

Methodology

Given my ontological and epistemological perspectives I chose to engage in a narrative inquiry based methodology. This entails analysing the stories that the young people and I constructed.

I initially gained consent from the school to carry out the research. I then identified potential students from Czech Roma families. This was done in conjunction with the school. These families were then contacted (with the use of an interpreter). The purpose of the research was fully explained as well as the fact that they could withdraw their children at any point. Eight families agreed and provided written consent (see appendices one and two) for me to start work with their children. This meant I was working with eight young people. I then spoke to the young people, once again fully explaining the role and purpose of the research, as well as outlining their right to withdraw at any point and once again obtaining written consent. All the young people were enthusiastic about participating. I then started the relevant conversations with these young people (see appendix four).

Although these interviews were unstructured I was aware of the topics that I wished to discuss. Initially, I asked the young people about being Czech Roma and what this meant for them. This provided valuable information about how they perceive themselves and the role that “being Czech Roma” played in their lives. This was also an attempt to “prime” (Oyserman & Lee, 2008) the young people so they were more likely to consider my following questions in light of their cultural heritage.

I used concepts outlined in a review paper (Hofer & Pintrich, 1997) as the basis for my questions. I utilised these concepts because they provided a relatively simple framework that I was able to use and the children would be able to access. The review paper identified four key elements that were central when investigating epistemology. These concepts are; certainty of knowledge, simplicity of knowledge, source of knowledge and justification for knowledge. I asked questions based on these concepts. I also combined these concepts with topic/examples used in the previous literature. Throughout the research process I was aware of the geographical context in which the interview was occurring. As these interviews were taking place in a school I tried to minimise the traditional power dynamic that occurs between adults and young people in school (Skubikowski, Wright, Graf, & Alvarez, 2012). I explicitly addressed this with each of the young people as part of the interview. An

interpreter was made available, but was not compulsory. The interpreter was used in three interviews. Inevitably an interpreter filters the young person's voice through their own. I was aware that it could be argued I was not "truly" gaining the child's voice in these interviews. As I was not intending an analysis based purely on the "form" of the language, I was not going to analyse micro pauses etc. I considered the use of an interpreter an acceptable compromise when compared to not gaining that young person's views at all.

The Analysis Process/Story

These stories, having been co-constructed and recorded were then transcribed. Once they were transcribed they were analysed using a three dimensional re-storying analysis.

Initially I identified primary themes which took the form of broad passages of text. These passages were then grouped into broad categories, with a tendency to overlap. In accordance with the narrative inquiry methodology (Clandinin, 2006, 2007; Connelly & Clandinin, 1990, 2000; Wertz et al., 2011) I attempted to focus on the unsaid or the unsayable as well as what was said.

These interim texts were then explored through the creation of diagrammatic forms representing what (Craig, 2007) calls 'story constellations' (see appendix 5). The creation of these story constellations utilised analysis considering "Schleiermachers hermeneutic circle" (Wertz et al., 2011). This is the belief that an understanding of the whole illuminates the parts. Specifically, this includes hermeneutics of faith (giving meaning to text) and hermeneutics of suspicion (decoding a disguised text) (Wertz et al., 2011).

These were then in turn considered using what (Connelly & Clandinin, 2000, p. 67) called "backing and forthing", that is, moving from the present into remembering the past, comparing the physical space, and reflecting on any personal feelings and involvement that might be influencing selective memory and perceptions.

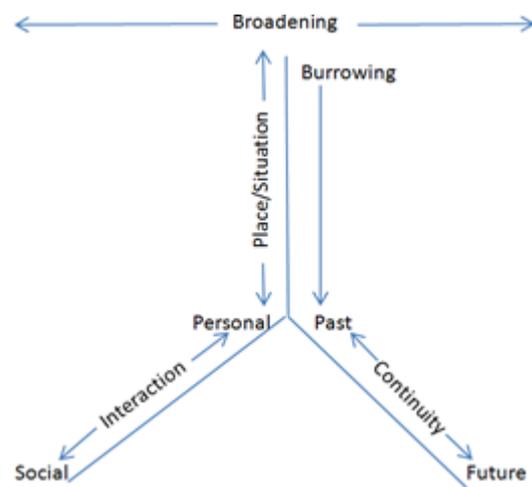
The stories that the young people and I generated were then subject to a three dimensional analysis which included broadening, burrowing and restorying (Connelly & Clandinin, 1990). Broadening is essentially a generalisation. An event that has been discussed will be used to make a general comment about the person or about their environment. Consequently, these generalisations appear as descriptions of character and the social environment. Connelly and Clandinin (1990, p. 11) refer to these as "long-hand answers to the questions what sort of person are you? Or what kind of society is it?"

In order to avoid creating unrealistic, unhelpful generalisations a process labelled burrowing is used to counterbalance broadening. When burrowing it is important to concentrate on the

interviews emotional, oral, and aesthetic qualities; we then ask why the event is associated with these feelings and what their origins might be. This way of approaching the event is aimed at reconstructing a story of the event from the point of view of the person at the time the event occurred.

The final element in this process is restorying. When restorying the person returns to present and future considerations and asks what the meaning of the event is and how he or she might create a new story of self which changes the meaning of the event, its description, and its significance for the larger life story the person may be trying to live. When re-storying I attempted to pay close attention to specific story elements; plot, time, setting and characters. These elements make up the three dimensions of the metaphoric narrative inquiry space these are: the personal and social (interaction) along one dimension; past, present and future (continuity) along a second dimension; place (situation) along a third dimension.

Figure 1: Showing a visual representation of the three dimensional restorying analysis



Data into Stories

Broadening

Stories directly related to Knowledge and Knowing

Despite a broadening process all the diversity and complexity of the individuals interviewed should not be ignored or undervalued. It is important to note that all the stories that have been generated have been relayed back the young people who agree with the potential interpretation of the data. All the young people I interviewed expressed their enjoyment of school and learning. One enduring theme was that all the young people, reported a keenness to learn and consequently valued coming to school. They were all able young people who had a wide range of aspirations. This suggests that school has fostered a learning environment in which these young people feel valued, respected and able to learn.

Interviewer	do you enjoy, enjoy coming to school? Is school something that you value?
Female	Yeah
Female	And then the next week I was like, I didn't even cry once. I loved school.

Table 9: Excerpt from raw text

During the interviews the young people initially answered questions with certainty; they wanted to sound sure and positive about their answers. I think that this is a result of wanting to give the correct answer. This is perhaps unsurprising as this is a quality that is currently emphasised by the education system. This may have been further compounded by the physical space of the interview taking place in school. It was only once I made it clear that I wanted to explore complexity by expressing a genuine curiosity, gathering their opinions and sometimes challenging their ideas that they felt they could change/explore different answers. This was reassuring as this indicates that this depth and complexity of responses is likely to have been lost had an alternative methodology been selected, for example, if questionnaires had been used, as in previous research.

Initially the young people espoused absolute rules. These absolute rules, particularly those concerning moral scenarios seemed to be almost an automated response. When we jointly considered these absolute rules there were numerous examples of the young people generating exceptions and changing their mind from an absolutist perspective to a more contextual relativistic stance. There were also numerous examples of the young people expressing an awareness of the importance of contextualising information.

Interviewer	how do you know which situation is OK to lie in and which situation isn't?
Female	It's like, like use an example like, that she looks fantastic, but in your mind she does not but you don't want to hurt her feelings so you said that she looks fantastic.
Interviewer	Are most of the things you learn in school always true, no matter what?

Female	Not always true. They can change sometimes.
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Table 10: Excerpt from raw text

Interviewer	How do you know, how do you know when sometimes it's good and sometimes it's not? (telling lies). How can you tell?
Female	Cause sometimes it makes bad things, sometimes it works.

Table 11: Excerpt from raw text

Many of the young people seemed aware that multiple viewpoints can arise from one source of information/interaction meaning that people can come away from the same information with different views/perceptions. There were also however cases in which the young people found it difficult to accept the possibility of multiplistic viewpoints e.g. about colour.

Interviewer	Ah. OK. Does that mean that everybody thinks it would taste nice?
Female	No.
Interviewer	OK, why not? Why do some people think it tastes nice, and some people not?
Female	Cause some people are not like me.

Table 4: Excerpt from raw text

Interviewer	what colour is this wall?
Male	kind of white.
Interviewer	You think it's white I think it's cream, who's right?
Male	Me.
Interviewer	You are? Why are you right?
Male	Because it's white.
Interviewer	It's cream, can you not see it's cream?

Male	It's white.
Interviewer	Or could we both be right?
Male	No.
Interviewer	You don't think we could both be right? One of us has to be right and one of us has to be wrong, is that right? So how do we work that one out then? Why do you think that one of us has to be right, and one of us has to be wrong?
Male	Cause there can't be two colours at the same time.
Interviewer	Right, OK.

Table 12: Excerpt from raw text

When we discussed learning the young people all expressed their implicit trust in the teachers. When this was questioned further however the young people acknowledged that teachers could make a mistake or that they could even have a 'bad' teacher.

Male	Maybe it's a bad teacher and she - she acts kind when there's a different teacher, but when she's by herself with someone she's being bad.
Interviewer	I don't think it happens very often but it certainly could happen
Male	Yeah.

Table 13: Excerpt from raw text

This led many of the young people to explain why it's important to be able to evaluate the source of knowledge and to be confident in your own conclusions and be able to partition/evaluate knowledge. This was particularly clear when discussing where knowledge comes from. The young people were able to identify a variety of sources including school, libraries, internet and home. They were also able to explain how they would evaluate knowledge from these different sources and explain which they view as more valid. This was accompanied by an acknowledgement that you have to have a certain familiarity with a topic in order to be able to arrive at a valid judgement about it. Throughout this discussion it became clear that the young people felt that the source of knowledge that was best utilised depended on the context and purpose of the knowledge. This context included an awareness of cultural and temporal factors (in the widest possible sense e.g. clear, obvious and repeated examples of the young person being aware of the temporal specificity of

knowledge.) Several expressed school as the most useful source of information; when I asked why, their answers seemed to involve the two way interaction available in school. They emphasised the dialogue in school including, playing games and the role teamwork plays in learning. One young person explained how he knew the teacher had made a mistake after he had checked with his friend.

Ancillary Cultural Narratives that could affect knowledge and knowing

Traditionally, within the Czech Roma culture, knowledge is passed on through family (Kallstenius et al 2005.) from generation to generation using oral traditions (Greenberg, 2010). This healthy oral tradition may be one explanation for the apparent disinclination towards writing. Further evidence for this premise could be that despite the frequently discussed opposition towards writing many of the young people interviewed expressed literacy as a favourite subject. This may be because although literacy involves writing it also has an inherent element of storytelling which may appeal to those young people from a Czech Roma background e.g. studying myths and fables.

The young people also highlighted differences in the learning environment between Britain and the Czech Republic. For example schools in the Czech Republic do not have uniforms, have different behavioural rules / expectations, different facilities and also have a shorter school day. It also became clear that family played a large role in the life of the Czech Roma young people that I interviewed.

There were instances during the interviews, particularly with those young people who were more recent arrivals, where different values and moral standards were revealed, for example, attitudes towards lying and stealing.

Interviewer	Should you ever steal?
Interpreter	Sometimes
Interviewer	When is it OK to steal?
Interpreter	When, when you steal something today nobody will find out
Interviewer	OK. So, how do you know when you can steal and when you can't steal?
Interpreter	Well if somebody sees you one day, or they don't see you the other day.
Interviewer	OK. So the difference is about whether or not you get caught?

Table 14: Excerpt from raw text

Burrowing

When considering the precise context of the interview, the young people and their responses there are some potential concerns. For example the young people may have been trying to guess the answers I wanted to hear and given my assumptions about knowledge it may be unsurprising that I have identified social constructionist tenets when interpreting the data. They also clearly wanted to present themselves, and arguably their school, in a positive light to me. I was essentially presented as a stranger who was perhaps asking questions that were difficult to comprehend. These were concerns that I was aware of at the outset and tried to address by creating a relaxed environment. I also explicitly addressed the power dynamic explaining that I wasn't interested in right or wrong, I wanted to gather their genuine views. Interestingly, I discerned a mix of emotions between those young people who had been in the country for longer and those who were recent arrivals; those young people who had been in this country longer seemed more relaxed and at ease throughout the discussions. I feel that this could be more than simply a language issue as this relative unease (when compared to those young people who had been in the country longer) was equally evident when an interpreter was used. The more recent arrivals seemed less willing to express their opinion, less confident and were more aware of the unusual nature of the interaction.

Restorying

When engaging in the re-storying process of how the Czech Roma young people view knowledge it's important that the information revealed through broadening and burrowing is taken into account as well as elements that are integral to stories. The characters involved in these stories are primarily themselves and their family with teachers playing a more subsidiary role. The settings in which these stories take place are home and school, but both the homes and schools in the stories can be located in the Czech Republic and the United Kingdom. The timescale of these stories is vast and encompasses all the learning experiences of the young people interviewed. Finally, the plot seems to revolve around trying to balance themselves between two cultures and arguably two epistemological positions.

Even being aware of my own assumptions and trying to be as reflexive as possible, it remains clear that there is a degree of social constructionist thinking in how these Czech Roma young people view knowledge. This can be demonstrated clearly using the elements identified by Hofer and Pintrich as the central components that constitute how we view knowledge.

Within the nature of knowledge are the two components certainty of knowledge and simplicity of knowledge. During the interviews the young people discussed how knowledge can change, both culturally and temporally as well as how knowledge can be dependent on context, again both culturally and temporally. Within the nature of knowing are the two components; source of knowledge and justification for knowing. Throughout the interviews the young people discussed how important it is you are able to work things out for yourself. They took the view that knowledge is often located outside of them. They were also clear that in certain circumstances multiplistic perceptions will arise.

That is not suggest they have a purely social constructionist stance as the picture and stories that were generated suggest an infinitely more diverse and complex picture.

Family also plays an important role in the lives of young people and subsequently parents may view themselves as holders of important knowledge. This view may not be the one held by the institutions these families have to interact with. Consequently, could schools try to engage these parents as knowledge givers? In our discussions about how the young people view knowledge, the young people initially seemed to reflect the absolute answers that are rewarded in the current education system. This is exemplified by right or wrong answers being tested by a system that places such a heavy emphasis on examinations. When burrowing deeper it became clear that these young people (perhaps all young people) were engaged and thoughtful when considering knowledge in a more contextual and relativistic way, yet arguably this is not measured or valued by the current exam based education system.

Looking forward we could value the diversity and complexity that these young people and their culture bring to our education system and find ways to help them to maintain equilibrium between two cultures.

Discussion

Summarising the narratives

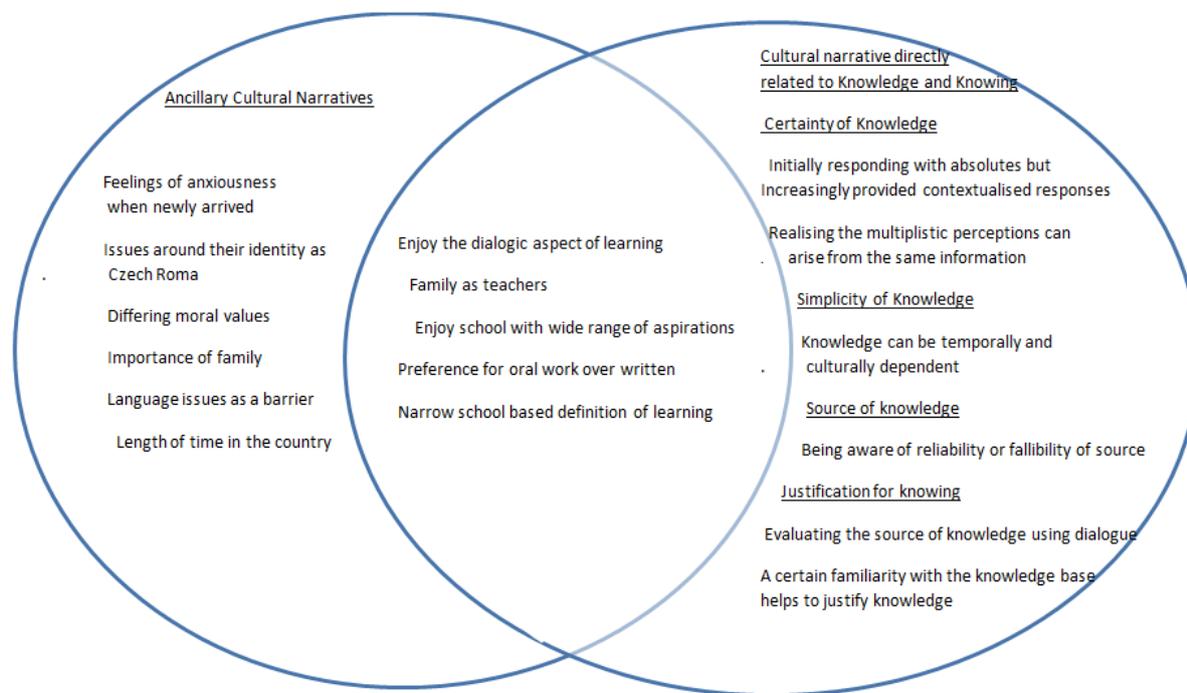


Figure 1: A Venn Diagram showing some examples summarising the narratives from this research

The stories themselves described in the previous section are the findings of this study in all their richness but I realise that this may not be the easiest format to understand or to gain an overarching impression of my results so I have tried to present some examples in alternative format to provide the nucleus of the findings (see figure 1). I do believe however that this format may dilute the richness and the essence of the stories

This research has shown that Czech Roma children have a complex and detailed understanding of the process of knowing and an equally complex view of knowledge. This is influenced by a number of important ancillary cultural narratives. There are times when Czech Roma children understand the process of knowing and view knowledge from a social constructionist perspective. The overarching finding that I feel is of particular note is that at times the Czech Roma young people did display ideas that could be associated with a social constructionist view of knowledge. I will discuss these findings in relation to the previous literature before going on to discuss the relevance of these findings for Educational Psychologists.

Relevance to previous literature

These findings correspond with those from previous research considered in my systematic literature review. Namely, indicating that cultural differences do play an important role in epistemology. The majority of the research concluded that individuals within a “western society” were thought to display a positivist epistemological stance until late adolescence; after which point they may experience a change in their epistemological stance (Alexander & Dochy, 1995; Hofer, 2001; Hofer & Pintrich, 1997; Magolda, 1999; Perry, 1970; Schommer, 1990, 1993). This is not a pattern that can be observed universally, across cultures. The stories generated in this research could be considered to support this by suggesting that the Czech Roma young people interviewed displayed ideas and thinking consistent with a social constructionist epistemology. Unfortunately, because there are no other studies that consider cross-cultural differences at this age, or that use a comparable methodology the number of wider conclusions and implications that can be deduced from this piece of research are limited. For example, this makes it difficult to argue that the tendency/ability to view knowledge from a social constructionist perspective displayed in this study is purely a result of cross-cultural differences.

The only potential comparison that I can draw is with research that does not make any cross-cultural contrasts. This research also suggests that young people in a western culture only view knowledge from a positivist perspective as a result of the culture and language that they are exposed to (Walton, 2000). Researchers considered the verbs of knowing used by kindergarten children. Consequently, Walton (2000) raised two points that are particularly relevant. Firstly, although the frequency and complexity of such language increased across the ages studied, even the kindergartners used epistemological terms to express levels of certainty and contrasting knowledge claims. Secondly, although teachers used a greater numbers of these verbs, they used them almost exclusively as tools to manage the classroom. This is opposed to a method of encouraging the young people to consider knowledge as negotiated and contextual. For example the teachers used terms such as “I think” almost exclusively to mean “You must,” as in “I think you need to get to work on your work”. One possible implication of this is that while the very young children may potentially be able to develop a constructionist epistemology, children’s experiences in school as an institution designed to transmit knowledge do little to encourage this viewpoint. As Walton (2000) suggests, teachers can, at times, be observed to undermine the development of this epistemological stance by claiming the objectivity of knowledge delivered by authority.

The stories generated by the young people interviewed in the current research may well support the above premise. They discussed different cultural narratives alongside thinking

associated with a constructionist epistemology. This may suggest that cultural narratives within the English education system govern the development of this positivist epistemological position. This may also suggest that these social constructionist ideas may not necessarily be unique to Czech Roma young people and if the right questions are asked in the right way many young people may reveal tendencies that may be associated with a fledgling social constructionist epistemology that could be prevented from flourishing by an education system rooted in the positivist paradigm (Chandler et al., 2002; Kincheloe & Weil, 2001).

There are implications for the English education system if two assumptions are accepted. The first assumption is that the English education system is mainly located within a positivist paradigm. The second assumption is that the findings from this research are interpreted as the young people who were interviewed demonstrated an ability to view knowledge from a social constructionist perspective. This acceptance creates an epistemological discrepancy. This presents issues for those who work within the education system and perhaps EPs are ideally located to understand and act on these implications.

Tentative Implications for EP Practice

The EP role as reflective practitioners (Boyle & Lauchlan, 2009; Schön, 1983) whose practice is informed by research combined with their role to inform strategy/policy (Fendler, 2013; Whitty, 2006) allows them to understand and implement findings from research literature. EPs can introduce a greater awareness of epistemology as well as a better balance of epistemologies into the English education system. The role of the EP encompasses work at three levels; the individual, the school and the local authority (Boyle & Lauchlan, 2009). An EP could work at all these levels to introduce social constructionist thinking. For example, when working with individuals EPs could introduce ideas that promote a more epistemologically balanced perspective. This could be done by asking questions and challenging assumptions as part of a consultation. When working at the level of the school, an EP would be able to conduct training that is located within a social constructionist paradigm. For example if giving training on ADHD (Attention Deficit Hyperactivity Disorder) this idea could be de-constructed, its recent history and socio-political context could be discussed etc. Finally, if an EP is working at the level of the Local Authority they may be able to consider and advocate policies that aim to provide a more epistemologically balanced education system. For example, encourage schools to utilise and develop thinking skills programme such as Philosophy for Children (Trickey & Topping, 2004) or to advocate democratising the classroom. An EP could also facilitate the introduction of social constructionist concepts ideas at the wider level of the community. For example this could be

couched within a raising awareness campaign within the community focussing on cultural differences.

It is impossible to say for certain what the potential impact of a more epistemologically balanced education system would be. We can however speculate. A more epistemologically balanced education system may result in less emphasis on absolutism (absolute rules) and a greater emphasis on contextualised knowledge. This could lead to greater discussion and a drive to try and understand individuals' motives and actions. Being less certain of knowledge and wondering if there even is a "right way" of doing things could be a step towards cherishing diversity and complexity.

Another possible outcome of a more epistemologically balanced perspective could be that an individual's behaviour would be more likely to be considered within the social, historical and geographical context. This is opposed to causes within the individual being identified as responsible. Yet another possible example could be an increased awareness of the source of knowledge and consequently evaluating that source and not assuming the knowledge being transmitted from an authority figure is "correct" or "true" and an acknowledgement that individuals and societies make meaning and filter knowledge according to their own agenda.

The role played by family in the lives of the Czech Roma young people interviewed made me wonder whether EPs can have a role in facilitating a greater level of familial involvement as "teachers" within our education system. This role would also combine with the relevant psychological literature. For example facilitating greater familial involvement would be coherent with Bronfenbrenner's Ecological Theory (Bronfenbrenner, 1979). EPs and schools could play a role in attempting to encourage Czech Roma young people to mix outside of their extended family to promote cultural understanding. EPs could also be involved, if necessary if there were any identity issues that revolved around negative self-image as a result of identifying themselves as Czech Roma. Again EPs could utilise their relevant therapeutic and psychological knowledge base to help the young people work through any issues that they perceive to be problematic. Finally, in some schools and communities there is a myth that I have encountered anecdotally which involves these young people not wanting nor having any aspirations. The stories generated in this research would suggest that this view is unfounded and EPs may be ideally positioned to challenge assumptions and discredit this view.

Limitations of this Research

This research, like all research, has limitations. Two of these limitations are associated with the young people selected to be interviewed as part of this research. They were selected as

they were considered to represent the Czech Roma culture; they were also clearly embedded within western culture and therefore may not purely represent the Czech Roma culture. I would however argue that you would never be able to find anyone who is a “pure” representation of that culture as every individual is unique. Also this research was designed to help provide useful information to schools that have a Czech Roma population. As such the young people interviewed do accurately represent that population, as much as is possible. Another limitation was that since the young people were identified in conjunction with the school, they were those young people and families who have a good enough relationship with school to grant consent for their children to be interviewed.

There are also two possible limitations associated with the methodology selected for this piece of research. Firstly, I feel that it important to acknowledge the diversity and complexity of the individuals interviewed and that this should not be ignored or undervalued. I am concerned that this may be a risk evident within the re-storying approach and 3 dimensional analysis. The second limitation is that despite all the attempts to generate and co-construct stories it may be possible that not all the relevant stories were discussed. This may be due to the age and language skills of the young people and in some cases the use of an interpreter.

Future research

I would recommend that future research in this area uses qualitative methodologies in order to access the context and richness necessary when considering such a complicated construct as epistemological development. One area that would be very interesting to explore further would be to conduct similar interviews with young white British people and children from a range of other cultures. This research would hopefully provide a valuable insight into whether other young people develop fledging constructionist ideas.

Conclusion

Having concluded that there are times when Czech Roma children understand the process of knowing and view knowledge from a social constructionist perspective I have discussed and argued for the importance of context. Unfortunately, the current context of the English education system may make promoting a more balanced epistemological system difficult. The wider narratives that exist within our own culture encourage simple and certain explanations. I believe that these explanations are sought out because they are perceived as providing security. These wider cultural narratives are reflected in the popular media in a range of topics from immigration to welfare (Political Correspondent, 2013; Petre & Waters, 2013). As a result politicians make decisions that aim to provide this certainty and security. This approach is unhelpful because the important questions are complicated and as such

have complicated answers. Unfortunately, due to the dominant positivist paradigm this complexity is perceived as frightening instead of being cherished and explored (Smith, Michie, Allanson, & Elwy, 2000). The Educational Psychologist can play a role in challenging these dominant cultural assumptions.

“To the degree that this is true, it offers a final and especially dark explanation for why epistemic insights ordinarily appear only at the beginning and at the end of the public schooling process. That is, we may so thoroughly discourage and punish their use that such thoughts simply go underground until our children have grown too big to any longer take us seriously” Hofer and Pintrich (2001) pg 163

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Appendices

Appendix 1- Parental Consent Form

Researching the impact of culture and heritage on learning

Dear parent/carer,

I am a postgraduate student from Newcastle University who wants to carry out a piece of research during the summer term of 2012. I would be interested in interviewing your child to discuss their views on education. Specifically, the aim of the interview would be for me to learn more about their background and cultural heritage alongside their views on learning.

I need your informed consent for your child to take part in this process. The school have already provided their consent and allowed me to contact you. Should you provide consent I will then explain this process to your child and seek their permission informed consent to participate in this process.

The interview will not last longer than approximately 1 hour during the school day. You and your child can withdraw from this research at any point. All data collected will be confidential and anonymous. **Please sign below if you give your consent.** Thank you.

For further information on this research please contact Andrew Scott at

a.scott7@ncl.ac.uk

or Sandra Lovell (Course Secretary)

0191 222 6568

Andrew Scott C/o Sandra Lovell

School of ECLS

King George VI Building

Queen Victoria Road

Newcastle upon Tyne

NE1 7RU

Researching Epistemological Development

Please return this consent form toby.....

I give consent for my child to participate in an interview that will help me understand the impact that culture and heritage can play on learning:

Name of child: Form Class.....

Signature: Date:.....

Appendix 2 – Young person consent form

Researching the impact of culture and heritage on learning

Hi,

I am a student from Newcastle University who wants to carry out a piece of research with you during the upcoming summer term of 2012. I would be interested in talking to you to discuss your views on school and learning. In particular I want to learn about whether you feel your background and life at home affects you in school.

I need your informed consent for you to take part in this process. The school have already provided their consent and allowed me to contact you. Your parents have also agreed that you can take part. I also want to know whether you agree to take part in this research. It is very important that you know that if you don't want to take part in this work you do not have to, it is entirely up to you.

The interview will not last longer than approximately 1 hour during the school day. You can stop at any time if you change your mind. Anything that we talk about during this conversation will remain between us. No one except me will hear our recorded conversations. **Please sign below if you give your consent.**

Thank you.

If you have any more questions please contact me at

a.scott7@ncl.ac.uk

or Sandra Lovell (Course Secretary)
0191 222 6568
Andrew Scott C/o Sandra Lovell
School of ECLS
King George VI Building
Queen Victoria Road
Newcastle upon Tyne
NE1 7RU

.....
Researching Epistemological Development

Please return this consent form toby.....

I give consent to participate in an interview that will help me understand the impact that culture and heritage can play on learning:

Name of child: Form Class.....

Signature: Date:.....

Appendix 3 – Debrief Form

Debrief

Thank you for participating in this research. The aim of this research was to find out what role culture plays in how we learn and how we view knowledge. All data collected will be confidential.

This research has been conducted by Newcastle University.

If you have any questions, please contact Andrew Scott:

a.scott7@newcastle.ac.uk

Appendix 4 – Example of raw text

Interviewer OK. I mean, teachers- I suppose teachers can make mistakes, yeah is that what you think – teacher's - cause I would say, yeah, teachers can make mistakes.

Male Everybody does.

Interviewer Absolutely, but do you think that what the teachers may be teaching you could ever be wrong?

Male No.

Interviewer OK. Do you ever think that [tuts] it's maybe, I- I'll give you an example. [Pause]. OK, which of these is the biggest?

Male This one.

Interviewer Which one?

Male The yellow one.

Interviewer Hundred percent?

Male Yeah.

Interviewer Absolutely certain that this block is the biggest? So I say which block is the biggest, which one?

Male This one.

Interviewer Hundred percent? Sure?

Male Yes.

Interviewer Absolutely guaranteed this one is the biggest?

Male Yeah.

Interviewer Certain? OK. [Pause]. So which one's the biggest?

Male This one.

Interviewer Ah, you said this one, you said a hundred percent guaranteed this one was the biggest.

Male Ahh.

Interviewer You said this one was the biggest, you're hundred percent sure this one was the biggest.

Male [Laughs].

Interviewer Well, now you changed your mind, is this one – which one's the biggest?

Male The blue one.

Interviewer But you said the yellow one. You said - I heard you, you said the yellow one, I've recorded it. OK, so how come you changed your mind?

Male Cause you just add one more.

Red = P1 Blue = P2 Green = P3 Orange = P4 Pink = P5 Turquoise = P6 Black = P7 Brown = P8
 Purple = more than 1 P

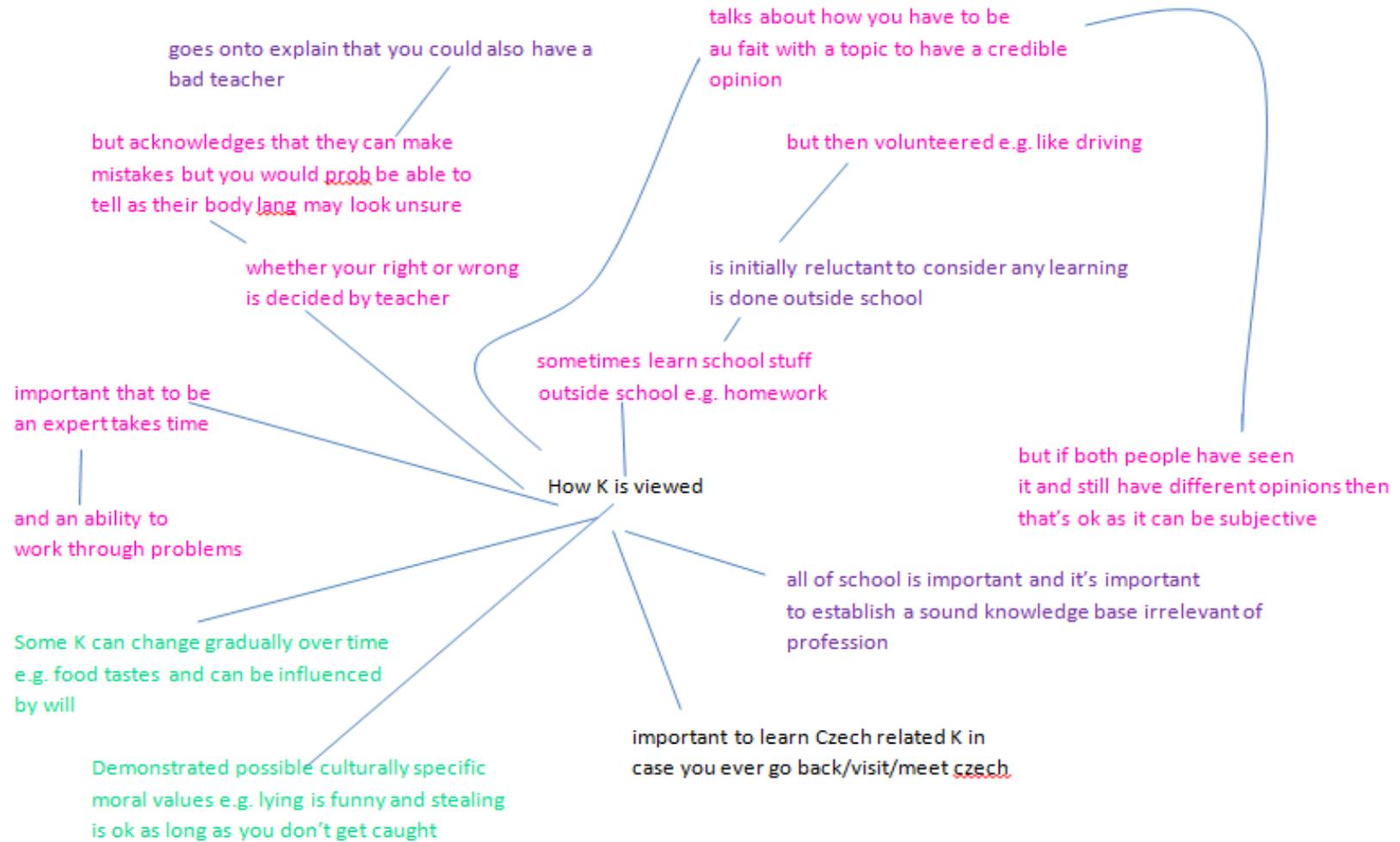
Appendix 5 – Example of a story constellation



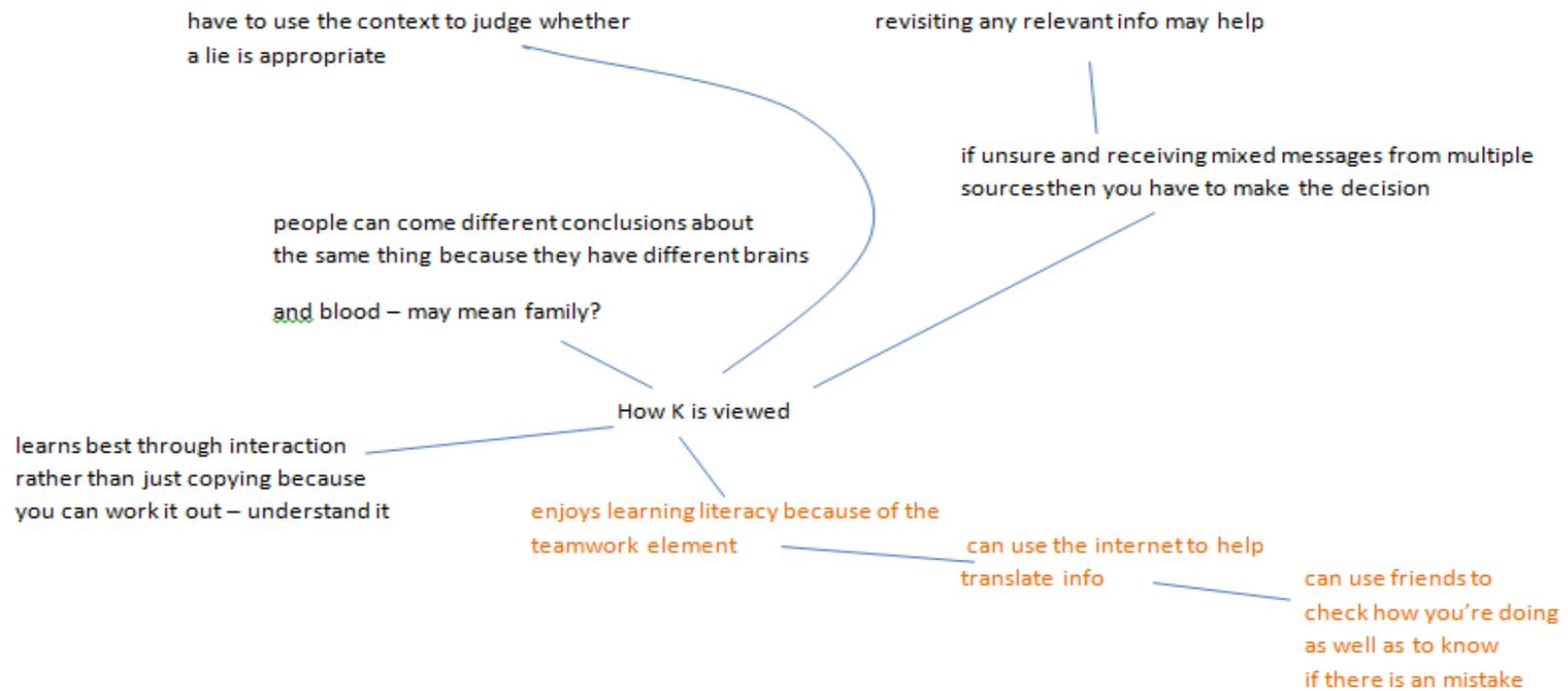
Red = P1 Blue = P2 Green = P3 Orange = P4 Pink = P5 Turquoise = P6 Black = P7 Brown = P8
 Purple = more than 1 P



Red = P1 Blue = P2 Green = P3 Orange = P4 Pink = P5 Turquoise = P6 Black = P7 Brown = P8
Purple = more than 1 P



Red = P1 Blue = P2 Green = P3 Orange = P4 Pink = P5 Turquoise = P6 Black = P7 Brown = P8
Purple = more than 1 P



Appendix 6 – Background/contextual information for choice of Czech Roma

For similar reasons to those outlined above it also important to provide some context to the Czech Roma as a cultural group. The story of the Czech Roma has a long and well documented history that encompasses oppression and violence. As far back as the Middle Ages Roma were persecuted by the Catholic Church for speaking a language that was not generally recognised. This persecution continued through the sixteenth to the eighteenth century. For example, in Hungary if Roma were caught speaking their own language they would have their tongue removed. Unfortunately, this oppression has continued in more recent times. It is well documented that many thousands of Roma died in Nazi concentration camps during the Second World War (Museum, 2013). The first time that Czech law explicitly defined the concept of “national” minorities and “members” of national minorities, including the Roma was 2001 (Mercator, 2012). Since the Czech Republic has joined the European Union in 2004 there have been changes in how the Roma are officially treated in the education system. However more subtle forms of discrimination remain. It is now recognised that the education system should be open to all and that all should have equal access to it. This rationale however needs to take into account existing inequalities. Including those inequalities that relate to variables such as income, health, family environment and culture that consequently constitute a fundamentally unequal society. These societal constructs create unequal conditions that make it difficult for a certain group of children to truly gain equality of opportunity to access education (Bagilhole, 1997; Gewirtz, 1998).

There are large numbers of Czech Roma now living in the United Kingdom (UK). It is not known how many Roma live in the UK. The best estimate in 2011 was around 300,000 (Equality, 2010). Many Roma avoid declaring their ethnicity and instead use their nationality. Nevertheless with the relatively recent enlargement to the European Union an increasingly high population of Czech Roma pupils are arriving into schools (Jenkins, 2013) and they can undoubtedly find it difficult to attend and understand the expectations of the British Education System (Equality, 2010).