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ReflectED

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ReflectEd
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Aims and Scope
ReflectEd provides a forum for the publication of interdisciplinary articles that celebrate the challenging and changing nature of educational research and practice. It is published by the School of Education, Theology and Leadership to encourage, celebrate and disseminate research, scholarly activity, and exciting pedagogical practice that is in keeping with our mission. This mission is to advance education through continuing reflective practice and professional development in diverse schools.

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Editorial: ReflectED and The Mission of St Mary's University

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In her editorial for the third edition of *ReflectED*: *St Mary's Journal of Education* Dr Maureen Glackin, Head of the School of Education, Theology and Leadership, quoted from a document Ex Corde Ecclesiae (From the Heart of the Church) which spells out Pope John Paul II's vision for what a Catholic university should be and which is included in the Legal Objects, Mission and Vision of St Mary's University:

> "A Catholic foundation in higher education is understood as "an academic institution which in a rigorous and critical fashion assists in the advancement of human dignity and cultural heritage through research, teaching and services offered to local, national and international communities."

(Source: Ex Corde Ecclesiae 1990 para 12: quoted in The Canon Law Society of Great Britain and Ireland The Canon Law: Letter and Spirit, p 442.)

In this fifth edition of the journal the first article explores ideas and thoughts about the implementation of the new mathematics curriculum. Such an article resonates with the quotation cited above particularly in the context of the promotion of human dignity. Two of the key characteristics of Catholic distinctiveness articulated by the Bishops' Conference of England and Wales focus on the search for excellence and the dignity of the individual. The Bishops are stating, in effect, that the dignity of any child who does not reach his or her potential experiences a diminution rather than an enhancement of dignity. The significance of mathematics does not need rearticulating here. It is interesting to note, however, what Sir Michael Wilshaw, Her Majesty's Chief Inspector of Education, Children's Services and Skills and a former student of St Mary's, said about mathematics education in his annual report for 2013-14:

> "Without a strong foundation in English and mathematics, children and young people are not prepared for the next stage in their education. They cannot progress to successful further study and, as adults, struggle to gain and sustain employment."

This was stated in essence by St John Bosco, the founder of the Salesians, more than 150 years ago when he insisted that one of his principal aims focused on ensuring that Salesian students were empowered to "earn their bread with honest work". The authors of this article are, therefore, engaging in a key concern of any University and particularly St Mary's "founded in 1850 by the Catholic Poor Schools Committee to meet the need for teachers to provide an education for the growing number of poor Catholic children" (see www.smuc.ac.uk/about/history-and-heritage.htm).

Mathematics features strongly in this edition of ReflectED. A second paper investigates literature around resilience to understand approaches to learning that would inform engaging and successful pedagogical practices in mathematics. Focusing on resilience, the etymology of the word relates to a Latin word meaning "to spring back". This should feature strongly in the mission of St Mary's University. At a recent paper addressed to a Colloquium on Blessed John Henry Newman, Professor Bernard Longden outlined the decline of exceptionalism in British Universities. I feel strongly that this paper was particularly relevant to contexts such as Liverpool Hope and St Mary's Twickenham in that many students enrolled for courses in those Universities are the first in their families to experience a University education. Such institutions are indeed "raising to distinction those ... born in the lowest place" to quote the Papal Bull of Nicholas V in 1451 to mark the founding of the University of Glasgow. Resilience should, therefore, feature strongly in St Mary's, focusing on improving confidence in both staff and students as this paper suggests.

I have spoken about my aim to expand the impact of St Mary's internationally and the research paper included in this edition of *ReflectED* entitled *Finland, PISA, and Scandinavia: A discussion of reasons for Finland's higher outcome in PISA from the Finnish perspective* resonates well with this aim. St Mary's and, indeed, all universities can learn much from our colleagues internationally. I have recently been in conversation with the Vice Chancellor of the Australian Catholic University, Professor Greg Craven, who believes that the opportunities for collaboration in the areas of Theology and Philosophy and school leadership are significant. He also mentioned the possibility of working with St Mary's on BERA Fellowships.

In conclusion I would like to refer to the review of Michael Fullan's book *Leading in a Culture of Change* (2001) in which he articulates what he believes to be the five core components of leadership: moral purpose, understanding change, relationship building, knowledge creation and sharing and coherence making. While written in 2001 this book is particularly apposite in the current climate in Higher Education as we move from an era of state-sponsored socialism to full-blown capitalism. Now more than ever St Mary's must have a clear moral purpose and a distinctive vision in order to flourish as a 21st Century Catholic University.

ReflectED Report

Did it Measure Up? A Report on the inaugural METRE Sphere event

Manish Kothari and René Hartmann
St Mary's University, Twickenham

Introduction

Primary and secondary teachers with an interest in mathematics were invited to the inaugural Mathematics Education Teaching Research Enterprise (METRE) Sphere event, on Tuesday 25th November 2014 at St Mary's University, Twickenham. METRE aims, through such Sphere events, to create opportunities where excellence in mathematics education can be shared, critiqued and celebrated. This event offered an opportunity for attendees to network and share innovative practice in mathematics education. The new curriculum has brought with it challenges but also new ways of looking at procedural and conceptual understanding. The evening opened with a guest speaker, Dr Gwen Ineson, who presented an address on *Balancing procedural and conceptual understanding: Implications from the new national curriculum*. Dr Ineson has more than 20 years experience as a teacher, half of which was spent in primary schools in North London. She has spent the last 10 years at Brunel University as a Lecturer in Primary Education.

Figure 1. Dr Ineson inspiring and informing the audience.

Dr Ineson focused her talk on procedural fluency and conceptual understanding in mathematics with consideration given to the importance of problem solving and reasoning in this process. She revisited the seminal report by Cockcroft (1982) on the teaching and learning of mathematics. The impact of the new mathematics curriculum at different Key Stages was discussed and supported by the value of research and its contribution to the understanding of how children learn to calculate. The errors that children make when calculating were considered with reference to some thought-provoking examples. The work of Skemp (1979), in terms of instrumental and relational understanding was exemplified, and how the latter was important if children were to become fluent in the fundamentals of mathematics. Resources were also discussed and their importance in implementing the aims of the national curriculum. Contradictions between the new assessment strategies and the need to reduce the types of informal methods used by children were examined providing an opportunity for rich discussion. Dr Ineson concluded her presentation by showing how student teachers can be encouraged to teach for relational understanding through the use of low threshold/high ceiling tasks. It is hoped that future speakers will also inspire and inform attendees how children can be encouraged to be mathematicians within the framework of the new mathematics curriculum.

The presentation was well received and was followed by small group discussions where ideas and innovations were shared and practices explained. Teachers were invited to bring ideas and resources to share and discuss with others how the new curriculum is being addressed in their planning and teaching. This opportunity to sit and talk about how children can be engaged in learning mathematics with other teachers was valued by all who attended.

What is METRE?

METRE is a research group created in 2014 by staff from the Primary and Secondary mathematics departments of the School of Education, Theology and Leadership, to provide excellence in mathematics teaching and learning through CPD, publications, research and enterprise. METRE consists of the following members: Christine Edwards-Leis, René Hartmann, Aniqa Khaliz, Manish Kothari, Jacky Oldham, Debbie Robinson, Ruth Tomsett, and Nigel Wills. An associate member, Marc Jacobs, teaches at a local secondary school and is conducting his PhD research in mathematics at St Mary's.

METRE supports and inspires teachers, students and learners in mathematics through forums to share best practice. The group recognises mathematical excellence in teaching, learning and research so as to create a community of mathematical educators and innovators.

Aspirations

Regular METRE Sphere days will be organised with the aim to continue to share best practice in mathematics teaching, learning, and research for student teachers and teachers. A goal is to organise annual conferences with the first planned for June 2016 titled 'Owning the curriculum: Innovative approaches to develop fluency, reasoning and problem solving in mathematics'. Support sessions are being provided for future student teachers wishing to improve their mathematics skills with the view to passing the QTS skills test or to develop deeper knowledge of key areas in the secondary curriculum. CPD events will be planned to develop mathematics investigations with an accompanying research-based, practical text. METRE has already impacted on the education provision at St Mary's University by the inclusion of a mathematics specialism in the Masters of Education: Pedagogy.

Concluding Remarks

The need for communication between primary and secondary schools has been one of the areas that METRE has identified as an opportunity to develop. Secondary teachers have a wealth of observations as to where students have gaps in their procedural and conceptual knowledge and understanding as they enter secondary education. Similarly, primary school teachers have valuable knowledge to share in terms of how to make learning practical and exciting and how to ignite children's interest in mathematics to develop relational understanding. Bringing the two together can only strengthen our community of mathematical scholarship.

Feedback from our first METRE Sphere was very positive, with attendees finding the talk by Dr Ineson inspirational and informative. Attendees provided useful ideas to guide METRE in future events such as exploring the phenomena of Shanghai Maths, investigating a problem-solving approach to learning mathematics, and how best to design opportunities for students to progress confidently from one Key Stage to the next. Other areas of interest are to develop teachers as action researchers and to submit their findings to publications or to share at future events. Mathematics practitioners often have to work in isolation and METRE aims to bring thinkers and researchers together in a supportive community of life long learners.

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METRE
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Finland, PISA, and Scandinavia: A discussion of reasons for Finland's higher outcome in PISA from the Finnish perspective

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Abstract

Finland's high results in the Programme of International Student Assessment (PISA) are often attributed to its contextual factors, such as its culture and society. Egalitarian values and the welfare state provide explanation for some of the reasons behind its PISA success; however, the other Nordic countries of Sweden, Denmark, Norway, and Iceland do not have the same outcomes in PISA. Finland scored higher than not only the rest of the Nordic countries, but also most of the world. Its strikingly good results indicate an enviable difference in achievement, which raises the question of why Finland scores higher in PISA than in the other Nordic countries. The Finnish perspective on the matter provides insight on these outcomes; therefore, this article explores the reasons behind these PISA results from the perspective of Finnish educationalists. The empirical results uncover the salient factors such as teachers and teacher education, attitudes towards education and national values, and societal makeup and immigration. This writing explores the uniquely Finnish features that promote high performance in PISA.

Key Words

Finland, PISA, Scandinavia, achievement

Introduction

Finland has received extensive, worldwide attention for its top outcomes in the Programme for International Student Assessment (PISA) since its inception in 2000. Research has shown that many of its educational successes stem from distinctly Finnish societal and cultural features (e.g. Chung, 2009; Simola, 2005), such as Finland's unique history, the value of education in its society, and the egalitarian nature of Finnish society. However, the likeness of the Nordic countries' structures would indicate an analogous performance in PISA, as the countries of Sweden, Denmark, Norway, Iceland, and Finland have similar politics, culture, and society, as well as education systems. Egalitarian values and the welfare state also exemplify the character of all Nordic countries. However, PISA revealed a disparity within the countries' scores, and Finland was the top performer in this Northern European group by far, not to mention one of the top performers in the world. Finland's "strikingly" good results indicate an enviable difference in achievement in reference to the Scandinavian countries (Kjærnsli & Molander, 2003: 69). This shows "students in Finland are indeed very well prepared for using science, [mathematics, and reading] in their future lives as useful and critical members of a democratic society" (Kjærnsli & Molander, 2003: 69). However, the results spanning from 2000 to today show that the wider contextual features of Finland, often credited with its PISA successes, are contained within the Finnish border, raising the question of why Finland scores higher in PISA than the Scandinavian countries. This article, thus, tackles the issue with empirical research from the Finnish perspective, uncovering the nuances between these countries, and highlighting why Finland outscores its Nordic counterparts.

Background and Theoretical Framework

Finland has a close relationship with its Scandinavian neighbours of Sweden, Denmark, Norway, and Iceland. These countries have ties due to their similar languages, shared history, and current joint endeavours. The issue of the Finnish and Swedish languages within Finland helps uncover Finland's ties with the Nordic countries as well as assert its uniqueness. The Nordic Council also exemplifies the cooperation and camaraderie between the Nordic nations. These two features thus provide a good foundation from which to understand the relationship and shared values between the Nordic countries, as well as insight into Finland's unique role in the group.

Language

The two official languages of Finland, Finnish and Swedish, set Finland apart from the Nordic countries, but also build the common ties between these countries as well. The Finnish language possesses unique linguistic characteristics that separate it from most European languages, including the Scandinavian language group. In fact, the distinctiveness of the language demonstrates the Finns' uniqueness as a people and remains an extraordinary characteristic (Bacon, 1970). The mysterious nature of Finnish origins as well as the nature of their language, in concert with their history under foreign rule, adds to pride in their exceptional language.

The centuries under Swedish rule, for example, from the thirteenth century to 1809, enhanced pride in the Finnish language, due to the necessity of Swedish, used in all officialdom, including education (Hall, 1967). The influence of language in Finland, which stems from Swedish rule, enforces ties with Sweden and the rest of the Nordic countries. In order to better understand Finland this article further explores its ties with Sweden and the reasons behind its bilingualism.

During their time under the reign of the Kingdom of Sweden-Finland, the Finns were forced to accommodate the Swedish language. The people of Finland expressed their nationalist feelings in Swedish, as the educated people of Finland used the Swedish language, and, as stated previously, Swedish remained the language of instruction in all schools (Bacon, 1970). However, this link to Swedish culture and language allows Finland to cooperate in the Nordic community. To the casual observer, Finland belongs to the group of Scandinavian countries by proximity of geography:

> Finland participates as the easternmost of the Nordic countries, or of Fenno-Scandinavia, as the geographer would say. But it would be a mistake to imagine that this cooperation is motivated by purely or even primarily geographic considerations. There is so much else to bring the Nordic countries together. They all have the same cultural background, and a historical fellowship of fate (Fagerholm, 1960: 69).

After Swedish rule, Finland became a Russian Grand Duchy. Upon Finnish independence from Russia in 1917, the Finns chose to begin their time as an independent country upon the previous Scandinavian foundations (Fagerholm, 1960), rather than the more recent Russian influences. Here, the influence of the Swedish language allowed Finland to assume Scandinavian identity. Because of this, Finland secured its position as part of the North of Europe, rather than the East. Despite the differences from its Scandinavian counterparts, modern, independent Finland has formed its unity and identification with them (Hall, 1967).

The Nordic Council

In addition to the historical context of the linguistic issues, the Nordic Council further cements Finland's association with the countries of Sweden, Denmark, Norway, and Iceland. The Council, born in 1953, officially outlined the cooperation between the Nordic countries, a practice essentially already in place. This cooperation comes at all levels and disciplines, such as politics, medicine, fashion, and the arts (Hall, 1967). For Finland especially, the Nordic Council has proved beneficial. Its struggles before and after independence with neighbouring Russia followed by the Soviet Union, in addition to its geography, placed Finland in a tenuous position (Chislett, 1996). Finland's determination during the Second World War seemingly deterred the Soviet Union from adding the country to its republics, and the Nordic Council helped cement Finland's position as a Northern democracy along with its Scandinavian neighbours.

The Nordic countries all have a relatively similar degree of homogeneity and share a religion, Lutheranism. All, with the exception of Finland, speak a language with analogous roots, but the Finns speak Swedish as a second language, and the Swedish-speaking minority has a Scandinavian language as a mother tongue. Again, Finland's use of Swedish as an official language allows for better cooperation with its Scandinavian counterparts (Hall, 1967). All of the Nordic countries also share similar social backgrounds and small population size. Most significantly, all Nordic countries pursue the common ideal of the egalitarian society. This egalitarian goal does not push everyone downwards; rather, it levels everyone upwards:

> The North wants to be an educated middle-class society; it rejects the cheap and shoddy and does not deride such attributes as honesty, conscientiousness, good behaviour, and good speech. These may not be universally achieved, but they are commonly accepted as constituting a desirable standard, and this makes the day-to-day operation of social democracy far easier and more relaxed (Hall, 1967: 209).

All Nordic countries have adopted similar social policies, aiming for an egalitarian welfare state. Even though the countries have differing levels of welfare and benefits, all countries strive for a high quality of life.

The Nordic Council confirmed Finland's ascent towards being a wealthy, independent nation. For the first few decades of independence, however, Finland struggled with internal disagreements and war, both within the country and through protecting itself from others. The Nordic Council "brings to a close the isolation of the past and stabilises [Finland's] position in Europe and the world" (Hall, 1967: 210). It brings great possibilities for social, economic, and cultural development for the country, more so than it could have accomplished without this union. The Finns clearly differ from their Scandinavian counterparts: "The Finns are, as it were, half-brothers who bring a different genetic inheritance into an environment which is comparable, though modified by the duality of the marchland" (Hall, 1967: 210). Finland's former relationship with Sweden also adds another dimension to her membership in the Nordic Union:

> The centuries of subordinate relationship to Sweden have left the Finns with a still unsatisfied anxiety to prove that Finland can do as well as her more advanced and wealthy neighbour. Over the years, many Swedish developments have reached Finland, with a certain time-lag, and made a considerable contribution to the Finnish advance; but Finland sometimes risks overstraining her resources, or choosing less suitable policies, when emulating the Swedes (Hall, 1967: 210).

This statement by Hall reiterates a well-known statement regarding Finnish education, that Finland makes the same mistakes as Sweden, only ten years later (Välijärvi et al., 2002). However, Finland's performance in PISA, as well as the results of this present study, illustrates a new relationship that has emerged as a result of the success of Finnish education in PISA.

The Finnish identity, while not quite Scandinavian, remains an elusive entity:

> The Finns know and understand the Russians, and their imprisonment in history, better than do most Europeans; they have long-standing ties of sympathy with the Poles; they have a kinship, if remote, with the Hungarians; and they are part of the Scandinavian family (Hall, 1967: 137).

Even though Finland does have many similarities with the rest of Scandinavia, it possesses many attributes that render the country different from the Scandinavian countries. Nevertheless, Finland's place in the Nordic Council confirms its place among these countries in the modern world.

The factors of language and the Nordic Council illustrate Finland's ties with the other Nordic countries, as well as its differences. The disparity in PISA scores provides a good springboard from which to further examine the differences and similarities between Finland and the Scandinavian countries, as the scores uncover the disparities between these countries, especially in terms of education. Kjærnsli and Molander state:

> It is remarkable how much better the students in Finland perform than students in the other Nordic countries. Sweden is also in the group of countries where students score significantly above the OECD average, but the scores are still far lower than in Finland. Students in Norway and Iceland score almost at the OECD average, while Denmark's result is below the average (Kjærnsli & Molander 2003: 63).

Despite many comparable features, most notably the egalitarian societies and welfare states, the PISA outcomes show that differences do exist in these closely-associated countries. Therefore, this article endeavours to uncover the differences between the Nordic countries, and the reasons for Finland's higher outcomes in PISA from the Finnish perspective.

Nordic Countries and International Testing

Upon further investigation the PISA scores do reveal the differences between the Nordic countries. For example, Kjærnsli and Lie (2004: 271) conducted a study using the 1995 Third International Mathematics and Science Survey (TIMSS) data, finding "evidence of a characteristic pattern of features constituting a Nordic tradition within science education". Interestingly, Finland did not participate in the 1995 TIMSS survey. In PISA, however, Finland greatly outscored its Nordic neighbours, especially Denmark, shown by the example of the PISA 2000 scientific literacy data. Kjærnsli and Lie used a number of tests to check for Nordic correlations. They did find a clear connection among the Nordic countries, but found in cluster analysis that Denmark veers towards the German-speaking cluster, while Finland seemed somewhat atypical of a Nordic country. These findings resulting from international testing and quantitative analysis uncover the underlying differences between the Nordic countries, also discussed later in this article when analysing the qualitative perspectives on the matter, especially from the Finnish view. Kjærnsli and Lie's conclusions are also supported by the aforementioned literature, suggesting that Finland occupies an "outlier" role within the Nordic countries, as exhibited in its education results.

Furthermore, when analysing Nordic PISA results, Kjærnsli and Lie (2004) also found that the correlations among the Nordic countries, although somewhat weak, illustrated that Iceland, Norway, and Sweden had the strongest connections with each other, while Denmark leaned towards continental European countries, and Finland fit even less well into the Nordic group. "Both the extremely high overall score in scientific literacy and the divergence […] from the Nordic pattern put Finland at odds with its Nordic peers" (Kjærnsli and Lie, 2004: 284). Kjærnsli and Lie (2004: 284) also remarked that the "similarities and differences that have been revealed in the present analyses are obviously caused by the interplay of curricular, language and more general cultural factors". Thus, this data shows that, upon close investigation, the Finnish uniqueness penetrates even its education test scores. This is further reflected in the empirical results presented in this article.

Turmo (2004) found that the role of socio-economic status and educational performance did play a role in PISA, even within the egalitarian Nordic context. Norway and Denmark had the greatest influences from socio-economic status while Finland and Iceland had the least. Sweden came in the middle. Owing to the principles of equity and egalitarian values of Nordic countries, one would expect a low influence of socio-economic status on education. Norway, however, comes at the OECD average for the influence of cultural capital on scientific literacy, while Finland and Iceland had some of the weakest correlations within the OECD. The philosophy of the welfare state would lead to the expectation of low influence of socio-economic background on educational attainment. However, the cases of Norway and even Denmark illustrate that Nordic countries too fall prey to these influences. Thus, Turmo's research uncovers the nuances, and in this case, the influence of socio-economic status, between countries with similar egalitarian principles.

The analysis of international achievement studies, including PISA and TIMSS, illustrates that the Nordic countries, often associated as a collective unit, do exhibit different characteristics and attitudes. Even socio-economic influences on education differ between these countries with a strong welfare state ethos. The empirical, qualitative data contributing to this article helps uncover these nuances.

Methodology

This research was conducted within a comparative framework grounded in the educational policy borrowing theory and methodology outlined by Phillips, Ochs, and Schweisfurth (Ochs & Phillips, 2002; Ochs & Phillips, 2004; Phillips & Ochs, 2004; Phillips & Schweisfurth, 2006). It drew largely upon the interpretive-historical paradigm, emphasising in-depth qualitative fieldwork in Finland. The research conducted on this subject incorporates non-participant observation in six sample schools in Finland (Cohen & Manion, 1994), representing both language groups of the country, Finnish and Swedish, and semi-structured interviews (Drever, 1995; Kvale, 1996) with Finnish educationalists. The interviews included seventeen teachers of the subjects covered by PISA: mathematics, science, and mother tongue, and involved the age group implemented by PISA: fifteen-year-olds. The interviews also included six head teachers, two former Ministers of Education, and seven professors of education involved with the implementation of PISA in Finland. All interview subjects were asked why Finland scored higher in PISA than the Scandinavian countries of Sweden, Denmark, Norway, and Iceland. Confidentiality was assured (e.g. Kvale, 1996) with the use of pseudonyms in place of the participants' names.

Findings

Although the differences in PISA outcomes, for example, between Iceland's and Denmark's performance in the mathematical literacy in 2003, do not have statistical significance, the difference in performance between Finland and Norway, however, in the same survey does suggest disparity in educational achievement between the two systems. As previously stated, on the surface, all Nordic countries follow similar patterns in their politics, economics, and society, and also in education. However, PISA illustrates that the different Nordic countries have nuances that make them distinct.

As this article has asserted, Finland differs from its Nordic neighbours historically, as part of both Sweden and Russia, linguistically, with its own unique non-Indo-European language, and culturally. Various factors have influenced Finnish culture to develop into its own unique hybrid of Scandinavian and Eastern. For example, Finnish history has created a culture that "still incorporates a meaningful element of the authoritarian, obedient, and collectivist mentality" (Simola, 2005: 457). Finland's geography and history also contribute to this. Its time as an autonomous Grand Duchy of Russia and its proximity to the East has added a different dimension to its culture, enhancing and transforming the influences of the Swedish Kingdom. "It is not an overstatement to say that eastern elements are evident in Finland everywhere and in every way, from its administrative traditions to its genetic heredity" (Simola, 2005: 457). This Eastern flavour also filters into politics. Social Democracy in Finland, especially when compared to its Nordic counterparts, "retains some eastern authoritarian, or even totalitarian, flavour […] At least heuristically, there is nothing strange in finding Finland together with nations such as Korea and Japan in some international comparisons" (Simola, 2005: 457). When comparing Finnish PISA results with those of South Korea and Japan, Finland's scores correlates more strongly with the high-achieving East Asian countries than with its Nordic counterparts. Here, Simola (2005) highlights further the differences that make Finland an "outlier" from the other Nordic countries, and give some explanation to why the Finnish PISA scores correlate more strongly with East Asian outcomes. The differences have also permeated the education systems of the Nordic countries. Thus, this article now reveals findings from empirical research in Finland, from the head teachers, teachers, professors of education, and Education Ministers. Their reasons for Finland's higher outcomes in PISA stem from factors discussed in four categories: teachers and teacher education, attitudes towards education and national values, societal makeup and immigration, and other factors.

Teachers and Teacher Education

Finnish teachers and teacher education have received much attention, as research points to the high quality of teachers and their preparation as a salient factor behind the top outcomes in PISA (e.g. Chung, 2009; Sahlberg, 2011). The Finns would agree. For example, head teacher Pekka believes that Finland has a better education system than the other Nordic countries, especially due to its system of teacher education:

> So far our systems are better than in the other Nordic countries […] We have the benefit as compared to the other Nordic countries, that we have noticeably better teacher training. It is of higher quality than, for example, in Sweden, Norway, Denmark. Especially Norway. There, in Norway, the teacher training system is very bad.

Elin, also a head teacher, states how many people have wondered about the differences between Finland and other Nordic countries and their differing PISA outcomes. She believes that the variations in teacher quality create some of these differences. All of the teachers in her school have Master's degrees. She also thinks a narrow but deep specialisation in teaching subjects helps the teachers gain proficiency in their subjects. The level of education for Finnish teachers sets the education system apart from the Scandinavian countries. For example, Jouko, a teacher, acknowledges the similarities in the systems; he believes Finnish society has more respect for its teachers. He says, "We are on the outside quite similar [… but] I think Finnish society respects and values teachers more. It is not financial but it is status. Teachers and doctors are respected [in the same way]."

Professor Virtanen also acknowledges the similarities of the Nordic education systems and their philosophies of education, and therefore credits teachers as the crucial factor for Finland's higher PISA outcomes:

> The quality of teaching and teachers is extremely important […] and it explains also why differences between schools is quite small in Finland […] They are trained, our teachers, at university level, and they get Master's degrees. I think that is a very important part of the explanation, the quality of teaching. It's homogeneous compared to some other countries. That has kept also the status of teachers quite high in Finnish society.

The Finnish attitude maintaining the respect and high regard of teachers makes Finland different. Teacher education and the high status of teachers, in addition to the popularity of the profession, mean that no shortage of teachers exists in Finland. Professor Virtanen cites how Sweden has a shortage of teachers and a different system of teacher training. Although now a part of higher education, it remains separate from other studies. Teaching also does not have the same popularity in Scandinavian countries as it does in Finland. Professor Rautiainen mentions how Finland's teachers have higher qualifications than their Scandinavian counterparts. For example, Anneli, a science teacher, uses Norway and Sweden as comparisons:

> I have now talked to Norwegian teachers because they are a part of our project and we went there in September. We saw them and the education level of teachers is not as high as in Finland, and the teachers, they make groups and teams. For example, a team of teachers is teaching all the seventh graders. They decide themselves all together who teaches what subject. So a teacher is teaching perhaps five subjects and perhaps they haven't studied [the subject] at all.

Finnish teachers and their preparation may correlate to the higher scores in PISA. Professor Virtanen speaks about the high status of teachers in Finland:

> The status of teachers in society is quite high. If you compare the status of teachers, we have a survey, I think every third year, made by some leading newspaper […] asking people how we value these professions, and teachers are on a very high level compared to lawyers or medical doctors and something like that. That is very exceptional compared to other countries.

Professor Laakonen agrees. "Since they are academics, they are considered academics in society." Professor Karppinen also mentions the high quality of teachers in Finland. All classroom teachers and even some substitute teachers have Master's degrees. This provides a good background and foundation for teaching. He also mentions that this high status of teachers in Finland exists despite their low salary. He says, "Teachers think that their salary is not good, but even though they do very good work. Perhaps we have quite high expectations from teachers." Professor Stefansson agrees with his colleagues. He describes the high status of teachers in Finland, how "it is still glorious to become a teacher in Finland." In addition to these factors, the former Minister of Education Jussila also thinks the core of Finnish success, even over the country's Scandinavian counterparts, lies in its teacher education. The teacher, who obviously plays a key role in education, needs to juggle many balls to successfully undertake his or her responsibility as an educator. The strength of Finnish teacher preparation sets a high bar of quality for Finnish teachers.

The opinions of these Finnish educationalists echo much of the research attributing teachers and teacher education to Finland's top PISA outcomes (e.g. Chang, 2009; Sahlberg, 2011). This salient feature sets apart Finland from the rest of the world, and the Scandinavian countries are no exception. The popularity, status, and education of teachers in Finland remains a unique and enviable feature of Finnish education, not replicated in the other Nordic countries.

Attitude to Education and National Values

As this article discussed earlier, Finland remains an outlier, in both education test scores and mentality, to the rest of the Nordic countries, and this manifests itself in a differing set of national values and a unique attitude towards education. For example, according to the former Minister of Education Jussila, the Nordic countries have cultural similarities, but the difference in educational attitude and PISA results "might have something to do with how strongly the national independence and culture and education in Finland have been bound together." Despite the cultural, political, and social similarities of the Nordic countries, Finland's history as part of both Sweden and Russia, the movement for independence, and the rise to economic prosperity may give them an educational edge in terms of PISA.

Another former Minister of Education, Minister Hyvonen acknowledges the complexity and interweaving of factors that contribute to greater Finnish success in PISA compared to Finland's Scandinavian counterparts. The Minister believes cultural differences between the Finns and the Scandinavians play a part in higher Finnish PISA scores, manifesting itself in such matters such as school discipline, and the attitude towards education. "Finnish people are more serious, perhaps more than those in other Nordic countries. Perhaps Finnish people take education more seriously in general. It is more the way to social mobility than in Sweden and Denmark." Possible social mobility, as previously suggested by Turmo (2004), therefore plays a part in the differences between Finland and the rest of the Scandinavian countries.

Head teacher Mattias believes that Finland scored better in PISA than the Scandinavian countries because of its unique mentality. He describes how Finns can sit and concentrate, unlike Swedes. In Sweden, they have a stronger group mentality, even in schools:

> It is important that they gather in a group, and the teacher should be a part of the students and one of the people in the group. Everyone is discussing and you should have a vote and vote for what we should do in the next lesson. Then everybody votes and then the teacher's voice is not the best voice.

Mattias implies that too much of a group mentality ultimately takes away any authority for the teacher. He also attributes the strength of leadership in Finland to the role of its political figures. Finland has a president, while Norway, Sweden, and Denmark all have royal families. These Scandinavian kings and queens do not have a strong role; rather, they merely represent the country. He believes this influences the culture of authority, or lack thereof, in Scandinavian countries, which transfers to schools. Thus teachers have stronger and more authoritative roles in Finland than in Scandinavia. In Sweden, according to Mattias, they must vote on everything:

> My friend […] he was working for two weeks in a company in Sweden, and they had to paint a wall in the company, just one wall. There were seventeen workers in that room, and everyone voted on [the] colour for the wall […] [In] some way, that must go down [to] the education level, and to the school.

In Finland, the larger teacher-student gap results in more effective learning. This authoritative role of teachers, as well as the teacher-student gap, reflects Simola's (2005) earlier assertions. The teachers in Finland purposely keep a professional distance from their pupils and their families. They feel that this sustains their role of adults and of role models. "Rather than encouraging intimacy, some experienced Finnish teachers emphasised how important it was to keep a certain professional distance from their pupils and their homes and problems" (Simola, 2005: 463). Scandinavian teachers, however, have closer relationships with students and their parents.

Maria, also a head teacher, thinks Finland's strong results in PISA come from the relatively good behaviour in its schools. In Sweden, however, schools have more difficulties and more disturbing students, which make it harder for the teacher to teach. Sweden, despite this, has its own cultural virtues as well. She says, "On the other hand the Swedes become much more outgoing and speak much better and more easily, learn to perform and are much more advanced on the cultural scene than the Finns." She said one could view either country as having greater assets than the other, depending on which aspects one values. Head teacher Elin also admires the Swedish system for producing students who can express themselves verbally. She also thinks they have good self-esteem. Therefore, while not measureable in terms of international comparisons, the factors perhaps to the detriment of Scandinavian test scores allow pupils to achieve in other ways. This illustrates the limitations of international testing and emphasis on quantitative outcomes.

Kjell, a science teacher originally from Sweden, has an interesting perspective on the differences between the Nordic countries. He has also observed classrooms and schools in all of the countries concerned. He thinks that students listen to teachers in Finland, and not in the other countries:

> When the teachers say something here the students listen. In Sweden, it is not exactly the same. I have been in all the Northern countries with classes, and usually when we are somewhere with other countries' students, our students are used to doing what the teachers say […] I think the discipline is harder here. I don't think it is so hard but it is hard.

He believes that students in Sweden and Norway have the lowest respect for their teachers, while Denmark comes in between. As Kjell comes from Sweden, he has excellent insight into the differences between Finnish and Swedish schools. He thinks that Finnish schools have higher standards of education, and the students have better mechanics of learning. He often compares education in the two countries with his brother, who lives in Sweden. He finds that Finnish students have better study skills and go further and deeper in subjects than in Sweden. Finnish schools also instill a work ethic in their students:

> They get homework from school practically every day from first grade. They learn to take their work seriously and do it. [They] make a system when they do their homework. I know that, for instance, my brother, his kids [in Sweden] don't have homework so often […] It is a tradition here […] We learn to do our schoolwork continuously. From an early age, Finnish students receive homework and learn to take work seriously.

Other teachers agree that Finnish schools have more discipline than the other Nordic countries. For example, Petra, a mother tongue teacher, says, "If you look at the Swedish schools, and there is no discipline at all […] It's all about social skills […] I think they need some rules and regulations and some orders from teachers who can organise the work." Here we see the emphasis on social skills, while beneficial, hindering academic progress. Finnish teachers mark their students' work and give grades that reflect the level of their academic efforts, which she also thinks influences their work ethic. Danish schools that Petra observed do not use grades in a similar fashion. She describes how "people didn't know how to read and write in year five, because they didn't test it. You're supposed to know in your own way. It's very nice, actually, but it's not good for learning." Tapio, a mathematics teacher, also cites how Swedish schools have less discipline and no homework. He says, "We have some sort of Eastern European hardness. Do that, and calculate, calculate, calculate. Maybe that is good. Pupils learn even if they don't want to. We make them learn." He believes that the students need discipline: "I think that people need discipline. They want it from our side. If no one gives orders they won't know what to do next, especially at this age that these pupils are."

Henrik, a mathematics teacher, also uses Sweden to contrast with the Finnish system. Although they have a matriculation examination in Sweden, they do not have many other examinations or assessments. Swedish students do not receive grades in school until grade eight, the penultimate year of compulsory schooling. In Finland, according to the national curriculum, students must receive grades by eighth grade, but in practice, many schools start administering them around grades five and six, and some even earlier. The Swedish upper-secondary school, the *gymnasium*, offers a variety of academic and vocational subjects. All students in Sweden attend *gymnasium*, unlike the Finnish system where they divide into two sectors. Henrik implies this lessens motivation for study.

Markku, a mathematics teacher, describes the differences in educational laws between Finland and Sweden. In Finland, the law dictates that students must learn. In Sweden, however, the law says that pupils must go to school. In Sweden, "the students are in school but it is too easy there. They can do more or less what they want. They come to school […] but they don't have to learn." In Finland, students must learn, but do not need to go to school to do so in other ways, such as with private tutoring or home schooling. For this reason, Markku believes Finland has a better education system than the Scandinavian countries. His fellow teachers agree that Swedish schools have too much freedom and low expectations of their students.

Some teachers find the differences in PISA outcomes curious, since all the systems in the Nordic countries have similar features, and they admit that Finland always watches Sweden in terms of education. As stated previously, Finns have the saying, "In reforming school, Finland makes exactly the same mistakes as Sweden, except it happens ten years later" (Valijärvi et al., 2002: 3). Jakob, a mother tongue teacher, however, notes the differences between the countries, albeit small:

> In Denmark you have the situation, the Danish culture […] as I understand, you choose your work and studies much earlier. In Sweden, you specialise much faster and in a way evaluation in Sweden has some weaknesses that perhaps should be dealt with. Then we have Norway, a very rich country, and it is perhaps isolating themselves. The value perhaps is that 'We stand by ourselves and if we get a job as an oil driller or whatever it is enough for us.' As I understand it, Swedes and especially Finns live to work, and Norwegians want to be more free and they work to get a living. In Iceland, well, there is a very special, unique situation, so it is hard to compare. I have been in Iceland and they have very strong ties with their economy. It is worth our respect. They have of course some problems with their language as they have to learn both Icelandic and Scandinavian languages, and they are not perhaps in need of cooperation with other European countries as we are in Finland. Iceland has more connections with North America. Perhaps that may affect their education system also.

These perceptions of the nuances between the Nordic countries give a better impression of their differences and potential attitudes towards education.

Professor Laakonen also feels that Finnish schools have more discipline than their Scandinavian counterparts. She thinks that perhaps Finns have more old-fashioned values, but the schools do not have the same strictness as other countries. She cites how Russian visitors think the Finnish schools have no discipline and the students are ill-behaved, while the Swedish "PISA tourists" believe that Finnish schools have strict discipline and well-behaved students. She says, "We are in between." Professor Koskinen, much like Simola (2005), believes the authoritarian attitude of the Asian countries also exists in Finnish schools. This attitude sets Finland apart from its Nordic counterparts and makes the educational outcomes higher.

Professor Karppinen admits that the other Nordic countries also wonder why Finland has more success in PISA than they do. He thinks that Finland and Denmark have differences from the others. He says, "I think that we have a little bit different attitude towards education […] Our mind is a little bit different [from that of] people in Sweden and Norway." Denmark, for example, feels influences from Continental Europe while Finland holds a position between East and West due to its borders with Sweden, Norway, and Russia. Kjærnsli and Lie's (2004) research support these claims. In Denmark, according to Professor Karppinen, the Danes stress the importance of enjoyment of life. This filters into the schools, where the importance lies more in the enjoyment of school rather than in school performance. In Finland, however, students try their best in school, even if they do not enjoy it. Professor Koskinen also mentions this. She cites how the Swedish visitors to Finland note how Swedish students have more "non-answers," meaning "if a task looks too hard, they don't bother. They just skip to the next one." In Finland, she describes, students receive half of a credit for an answer even if it is not totally correct. Swedish students do not have this advantage, making them more reluctant to answer questions they cannot completely answer. She describes this as an "in-between. Even if you don't know, or if you think you know, you try and you might get the right [answer]." Finnish students take the risk of answering the question while their Swedish peers do not.

Professor Rautiainen uses the aforementioned reference to Sweden: "We have followed the Swedish curricula and general schooling system but we are about ten years behind Sweden. When we copied the system we also studied the failure of the system, what could be improved." By learning from Sweden's mistakes, Finland implemented successful educational practice. This may also have influenced the relatively higher scores of Finland in PISA over the scores of Sweden. The use of Sweden as a comparison by the Finnish educationalists is a natural one, as the two countries have a shared language and close connections through history and geography. Nevertheless, it also illustrates how educational interest, or "cross-national attraction" (Phillips & Ochs, 2004) can shift and change over time. Sweden, once a model for Finland, is now looking at Finland for educational inspiration. The data collected from these Finnish educationalists show the differences, especially in terms of attitude towards education, between Finland and their Nordic counterparts.

Societal Makeup and Immigration

The differing societal makeup of the Nordic countries also contributes to the disparate PISA outcomes. While some Nordic countries, namely Sweden, have had wide acceptance of larger-scale immigration, others, like Finland, have not. Finland also does not have the immigrant populations of the other Nordic countries, and this influences the results. Mother tongue teacher Linnea, who teaches in a Swedish-speaking school, also has some insight into the difference, as she has in her class a student who had also studied in Sweden:

> I have a boy in one of my classes here, and he has spent most of his life in Sweden and went to school there […] He's Finnish, and the whole family moved over there for work and he learned Swedish there. His parents also, they really wanted him to stick with his knowledge of Swedish. When they came back he came to this Swedish-speaking school. He said that, and he's been here for a year, that he has learned more here during this one year than all of his studying in Sweden. He said they don't give homework there, at least at the school he was in […] It's noisier and the environment is not so supportive of studying. It's a lot of things going on and people fighting […] He said the problem was […] there are a lot of foreigners and there is a lot of racism, and a lot of these problems in these schools.

Linnea admits they do not have many cultures within her school, although she thinks her students should have diversity in their lives and learn about other cultures. However, she would also prefer to have a good learning environment. Denmark, Sweden, and Norway have bigger immigrant populations and therefore more diverse cultures to integrate within their systems.

Professor Laakkonen also mentions demographics when describing the differences between Finland and the other Nordic countries. The other countries have much higher immigrant populations than Finland, because of more open immigration policies. She says, "Shame on us," but admits that immigrants in a society add complexity to an education system. In this case, the education system needs to cater to immigrant students and different language backgrounds, as well as cultural and family factors. She cites the example of Sweden:

> It's not easy in [certain] school[s] […] if you have twenty students they might have fifteen different nationalities and languages. It is not sometimes the problem with the schools, but with their parents and with work and their background as they come as refugees or an asylum seeker. They are not easy problems to solve, especially in a school, even though they try very hard. But still Sweden is doing, I would say, very well, comparing to their population which has a strong immigrant basis.

Finland's rather homogeneous population, as suggested by the participants, has made the execution of education more effective, and without the additional challenges of a plural and diverse population. Interestingly, the slight decline in the PISA 2012 scores show the possible effect of increased immigration in Finland over the twelve years since PISA's launch in 2000 (Bernelius, 2013). While immigrants in Finland traditionally perform well in PISA (Viltanen & Peltonen, 2008) an increasingly diverse population in Finland has brought new challenges for teachers and the education system.

Other Factors

The Finnish educationalists also revealed salient reasons for its higher outcomes in PISA, but not entirely able to fit within a general category. Thus, this section discusses these at length. Professor Koskinen thinks that Finland's higher scores in PISA than the rest of Scandinavia also has to do with its differing development as a nation. She cites how Finland's industrial development came later than its European and Scandinavian neighbours. This late industrialisation more closely resembles the patterns in the Far East, bringing Finland closer to countries such as Japan and South Korea in this realm, aligning with Simola's (2005) argument. Because of this, Professor Koskinen states, "It might just be that PISA came at the point where we were still on the slope up and many […] European countries were beyond the point where education is on the rise." She also believes that PISA came at the time where Finland's educational reforms of the 1970s came to fruition:

> In Finland, the PISA generation […] is the children of those parents who have the greatest advantage […] of the educational expansion in Finland […] The kids of PISA, […] their parents are those who went into this expansion of the academic side of the old system, the parallel system, and the first ones who got university educated.

Professor Huttunen agrees. The reforms of the 1970s first influenced the parents of students taking PISA. The government committees of the 1970s proposed to make schools comprehensive and egalitarian, and to standardise schools even in outlying areas. The government proposed that these reforms take place in a "rolling" manner, between 1970 and 1985 (Whittaker, 1983: 32-33). Geography determined the first areas to see reform, as examples of "inadequate education" made way for the new comprehensive system, beginning in the North in 1972 and ending in the Helsinki area in 1977 (Whittaker, 1983: 34; Antikainen, 1990: 77). The parents of current PISA takers, who were educated after the reforms, benefited from comprehensive education and more access to education in general. Their children, in turn, have parents with higher and more widespread education levels.

Professor Laakkonen cites the Finnish recession of the 1990s as a salient factor in the education system. The recession, she feels, put Finland higher than Scandinavian countries in PISA. Before the recession, Sweden was always better in education. The recession "really changed our attitudes towards education, because in the '90s, we didn't think it had to be so pragmatic."

Previously, Finns viewed education as an autonomous and independent entity, separate from the labour market and the economy. Professor Laakkonen cites the "terrible" unemployment rate in 1993, at twenty percent:

> We had to do something. In '94 we got a new curriculum in both lower and higher grades and also the universit[ies] changed their profile. I think that was very good and healthy for Finnish life, so that we started to rethink the role of education and how it has to consider changes in the working life and economy.

Afterwards, Finland aimed to train innovative workers with pragmatic knowledge and problem solving skills. The other Nordic countries did not have such a recession, and did not have to make the subsequent educational changes. The social mobility present in Finnish society, as suggested earlier by Turmo (2004), both after the wars and after the recession, does not have as much influence in the other Nordic countries, such as Sweden. Professor Koskinen cites how Finland still has returns for education, where more education leads to more prosperity, as argued previously by Turmo (2004). In the other Nordic countries, however, she describes how the high standard of living has meant that a high level of education did not necessarily lead to a good quality of life.

Linguistic factors play a role as well. Casper, a science teacher, believes that Finland performed better in PISA than Sweden and other countries because of the logic of their language. Finnish, although a difficult language for others to learn, has a clear and consistent phonetic system, as opposed to, as he cites, English or French. Finnish "is a language where you write it in the same way that you pronounce it. It is very easy for the pupils to learn how to write in the right way, compared to English or French […] I think this will give a little benefit for the Finnish schools." In terms of language, Finnish-speakers have this advantage over others, but less so in mathematics or science.

Even in egalitarian societies, the literature (e.g. Turmo, 2004) and the empirical evidence presented in this article uncover the nuances between and influence of social mobility within the Nordic welfare states. This section uncovered some of the nuanced differences between Finland and the other Nordic countries, decipherable upon close investigation. These distinctions have benefitted Finland in terms of education, apparent in the disparity in PISA scores.

Discussion and Conclusion

The Finns will most likely cling to their uniqueness that differentiates them from their Scandinavian counterparts. Their history will make sure of this for some time:

> As the North influences and is influenced by the rest of Europe, the Finns may acquire some of the superficial features of both Northern and Western standardisation. Beneath the surface, out of an instinctive tenacious reaction, they are likely to cling all the more closely to the traditions, the background, the language and the land which have contributed so much to their individuality. The Finns have above all one of the most individual characteristics – they are among the few peoples of Western Europe who are still in love with the world. If they should lose this zest and optimism they would lose themselves and they would no longer be Finns (Hall, 1967, p. 211).

The Nordic countries have similar values, as illustrated by their comparable societies, culture, politics, and philosophies, exemplified by similar egalitarianism and welfare states. For these reasons, the different outcomes by the Nordic countries in PISA were counterintuitive results. However, upon further analysis, the disparate outcomes do not come as a surprise. For example, the aforementioned research by Kjærnsli and Lie (2004) shows that Finland does not fit exactly into the Nordic cluster. Meanwhile, Turmo's (2004) research into the socio-economic influences in Nordic countries' educational achievement shows a disparity in these influences even within Welfare States. Simola (2005) refers to the unique qualities of Finland, which include its language, history, and its distinct hybrid identity as both Scandinavian and Eastern. The "authoritarian" nature of this mentality manifests itself into a larger teacher-student gap in schools, and more authority by the teachers and principals, and higher discipline in the classrooms.

The Finnish participants contributing to this article added dimensions to the curious differences of Nordic outcomes in PISA. Many of the participants highlighted the importance of teachers and teacher education, as in Finland it comes at a higher level than in the Scandinavian countries. Many of the participants felt, much like Simola (2005), that this "authoritarian" Finnish mentality affected the higher outcome of the country in PISA. This mentality leads to a higher level of discipline in schools, a larger teacher-student gap, better student behaviour, and more authority in schools. All of these factors contribute to the differences between Finland's schools and the schools of Sweden, Denmark, Norway, and Iceland.

Immigration also plays a factor. "Shame on us," says Professor Laakkonen, but the Finnish policy towards refugees and immigrants has allowed the country to maintain a more culturally homogeneous country than countries such as Denmark, Norway, and Sweden. A culturally homogenous country makes it easier to execute an education system with consistency with quality and equality. However, the slight decline in the Finnish PISA 2012 scores may indicate that immigration is beginning to play a part in Finnish education (Bernelius, 2013). Future changes to the population demographic and future PISA scores can shed more light on this interesting change.

Finland's path as a country also gives it a unique flavor, setting it apart from the rest of the Nordic countries. Finland's history as part of Sweden and Russia, the independence movement, and late industrialisation intertwined the importance of education into Finnish culture. Furthermore, Finland's recession of the 1990s made the country reflect upon the purpose of education, and subsequently held reforms in order to have closer ties between the labour market, the economy, and the education system.

This brings up the issue if Finland can maintain the high level of performance in PISA. As previously addressed, the Finnish PISA scores of 2012 declined slightly. Furthermore, as more time passes, will the respect for teaching, education, and learning be maintained as the memories of Swedish and Russian rule, the comprehensive school reforms of the 1970s, and the recession of the 1990s fade from the Finnish psyche? Will Finland be able to maintain high educational attainment, and will the nuances that set it apart from the Scandinavian countries be relevant in the future?

Although the similarities between the Nordic countries would indicate comparable outcomes in international achievement studies, the PISA results have shown that Finland's performance outperforms those of their Nordic counterparts. This article has illustrated the importance of educational context, not only on the macro level, but also on the micro level. The Nordic countries, all adhering to egalitarian values and the welfare state, do have disparities in social mobility, history, attitudes towards immigration, teacher preparation, and value of education. All of these factors, among others, help set Finland apart from the other Nordic countries, with top achievement in PISA.

Interestingly, according to Elin, the head teacher, visiting Danes have accused Finland of using too many assessments in their schools:

> The Danes say […] the good PISA results are due to our terrible drilling of our students with our exams. I had Danish principals visiting and they were almost a bit annoyed with us […] It goes well when you drill and have so many exams and things like that, but as I said, in this PISA assessment it was not at all about this type of drilled, learned knowledge but it was about the ability to read, understand, and draw conclusions, problem solving, and so on. There must be something in this school system that develops also this thought process.

It seems that there may have been some envy provoked by the disparity in PISA scores in the Nordic countries. However, as Elin stated, Finland's high PISA scores illustrate the critical thinking and problem solving skills that PISA assesses. As this article has uncovered, while the Nordic countries enjoy shared policies on many matters, much of Finland's successes in PISA stem from its distinctly Finnish characteristics, to the envy and wonderment of the rest of the world.

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Resilience in Primary Mathematics: Providing a challenging learning environment

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Introduction

In this paper I will discuss the position that problem solving can foster resilience by focussing on key aspects of persistence, the pupils' self-perception of their ability, teachers' approach to learning and the learning environment. These will be discussed in relation to my personal experience and relevant literature.

During my Post Graduate Certificate in Education I undertook two Master's modules; 'From Values to Vocation' (MA1) and 'The Emergent Teacher as a Reflective Practitioner' (MA2). During my first Master's module (MA1), through critical reflection, I was able to explore and identify the educational values that underpin my educational philosophy. These are values of belonging, equality, respect and a belief that every child should feel a valued member of their class or community. I strive to ensure these values are continuously present in my emerging teaching practice; I continually try to evaluate my practice to ensure they are. Pollard (2005) describes reflection as a continuous cycle of planning, delivering and critically analysing. These cycles will aid me by ensuring my values are represented in my practice. Synonymous with my values was my initial research questions that emerged as a result of my first Master's module:

How can I create a safe and secure learning environment where all children feel valued?

The idea that children need to feel safe in their environment is seen in Maslow's (1970) Hierarchy of Needs; individuals need to feel safe and loved in order to move to levels of esteem and self-actualisation. Whilst creating this environment is something I will always strive to achieve in my classroom, through my recent experiences in the classroom I realised that this may not prepare children for life outside of school and their learning in the future. I now strongly believe there is a place for risk and challenge in the primary classroom to aid confidence and independence. I became increasingly frustrated observing children who would give up when they found something challenging and believe they were 'no good' at a subject, particularly mathematics. I believe that creating a safe environment where children are encouraged, willing and able to take risks will foster resilience. I believe in order to do this teachers and children need to reconceptualise failure as a way to learn and that this will, in turn, foster resilience in the classroom which will benefit children throughout life. In order to do this children (and teachers) need to be less risk-adverse. In this position paper I am going to critically discuss the following statement:

By providing challenging learning opportunities in mathematics, academic resilience can be nurtured.

Discussion

I agree with Brodkin and Coleman's (1996, cited in Dirling, 1999:125) definition of resilience, that a resilient child has the inner strength to "bounce back" from the problems that would seem to doom the child to certain failure. More specifically that 'mathematical resilience' enables pupils to learn despite setbacks and challenges in their mathematical learning and overcome the 'can't do it' response (Johnston-Wilder & Lee, 2010:38).

Benard (1993) identifies six attributes of resilience that a teacher can address in order to enhance this, one of which is problem solving. In this position paper I will be focusing on opportunities for learning in problem solving in mathematics and how this can nurture resilience. For this paper, the term problem solving refers to the application and use of skills, concepts and principles of mathematics in order to solve a problem (Haylock, 2010). I believe that it is vital to focus on the process rather than the correct answer during problem solving. Turner (2013:44) states, 'students who are given opportunities to work on their problem-solving skills enjoy the subject more', which I have observed during school experience. Problem solving ability has also been identified as a measure of resilience in school contexts (Waxman, Gray & Padron, 2003, cited in Morrison & Allen, 2007:162). All learning requires a certain amount of resilience, although particularly in mathematics, due to beliefs of fixed mathematics ability (Johnston-Wilder & Lee, 2010), which can reinforce negative self-perceptions for pupils. This can be compounded due to the type of teaching that can often be observed; tedious, one-off unrelated lessons and rote learning (Nardi & Stewart, 2003). I have observed these characteristics of mathematics teaching during school experiences. I noted problem solving lessons that gave children a context and purpose for exploring concepts and how these appeared to engage the children and allow them to make mathematical links. Ofsted (2008:50) listed some of the negatives in mathematics teaching; it is not made relevant to children, there is an over regard for speed in calculation, mistakes are not seen as learning opportunities and there is an over-dependence on the short term memory. Yet within the same article, problem solving was identified as an 'integral part of the best mathematics lessons'. I believe this is due to children being allowed to have time, make mistakes and work at their own pace, applying their mathematical skills, which will in turn nurture their resilience as they will become more determined to solve the problem.

Research by Paterson, Tyler and Lexmond (2014) illustrates that teachers are able to work with young people in order to learn resilience traits at all stages of life. Vaughan (2014:24) validated this research suggesting that character is not something in your DNA: resilience can be both taught and learnt and that 'grit' is a better determiner for success than 'simply being bright'. There are numerous benefits for resilient pupils; resilience leads to good learners and therefore good results (Stewart, 2013). Resilient learners take responsibility for their own understanding and will see seeking understanding and persistence as being 'clever' and feel confident in their ability to learn new mathematics (Johnson-Wilder & Lee, 2010). In a similar way to how I am striving to develop through these modules, of MA1 and MA2, they acquire a thoughtful and reflective stance to mathematics. The idea that resilience can be learned is not a new one. Ward (2012) cites a practical guide written by Professor Guy Claxton in 2002 entitled 'Building Learning Power (BLP)' which promotes 'learning to learn'. The core idea behind BLP is that intelligence is not fixed but can be expanded. I believe that teachers are able to enhance their students' resilience in problem solving which will ultimately lead pupils to be more successful academically in mathematics.

On my first placement I closely observed the 'high ability' (HA) and 'low ability' (LA) groupings in mathematics. One clear difference I noted was their differing attitudes to problem solving in mathematics. Here the HA children were able to focus on the task for longer periods of time and they appeared to take greater pleasure in solving problems than their LA peers. A similar observation was made by Koshy (2001); she describes mathematically able children who regularly demonstrate perseverance in problem solving (a quality that is characteristic of resilient children (Paterson, Tyler & Lexmond, 2014)). I was interested to investigate whether resilience was a cause or effect of this. I have since discussed this with other teachers and commonly they tend to respond that mathematical ability appears to be a combination of the child's innate ability and their attitudes (in this case resilience) towards mathematics. I observed that pupils in the 'middle ability' group had the most varying attitudes, some pupils were highly motivated and persevered despite their perceived difficulty of the task, whereas others would do the minimum required in order to get through the lesson without having to stay in at break time. During problem solving their extreme differences in attitude appeared to be reduced because I believe they were highly engaged in the task.

During my first placement I observed a Traveller pupil in Year 2. He was a talented actor and played the role of Joseph in the Key Stage One nativity with pride; he rehearsed his lines and regularly wanted to practise his scenes. However, the same child approached mathematics in a totally different way and he often told me 'I can't do it' and that he was 'stupid'. On one occasion the children were asked to do a problem-solving task 'to find as many combinations of coins that could make 12p'. On this occasion he was able to work methodically and clearly; he appeared to make real life links to this task and I was able to remind him of his perseverance on this task when he approached other areas of mathematics. The two scenarios mentioned can be seen to reflect Dweck's (2012) Fixed and Growth Mindset. A Fixed Mindset is where an individual believes they have the capacity to learn a certain amount and no more. A Growth Mindset is where an individual believes their learning is directly linked to their effort, that there is no limit on what they can learn (Lee, 2009). When approaching drama he displayed a Growth Mindset yet when he tackled mathematics he regularly presented a Fixed Mindset. Through problem solving he began to display Growth Mindset. Through talking with this child I encouraged him to challenge what he thought his mathematical abilities were, we assessed how accurate his negative thoughts were and focused on his positive achievements in mathematics, which is a suggested method by Morris (2009).

Edwards-Leis (2013) suggests that if individuals negatively perceive themselves to be incapable, this needs to be addressed before new learning can occur. She also states that an individual's 'mental models' can become strongly established over time; if a child consistently fails at problem solving these will become embedded in their 'mental models' and this will have a negative impact on their ability to learn. Many parallels can be drawn between resilience and a Growth Mindset. Those children with a Growth Mindset seem to believe that the more effort they put in, the more their learning will develop. Mathematically resilient pupils have approaches that will help them when they encounter problems and will develop a Growth Mindset (Johnston-Wilder & Lee, 2010). I discovered as an adult that I have Dyslexia, and whilst this did not come as a surprise to me it made sense as to why it would take me longer than my peers to learn and often I had to re-take examinations. However, this made me more determined to succeed and made the success more of an achievement. I believe I have developed my Growth Mindset in education and now believe that all children can develop this too. Lee (2009) comments that a Fixed Mindset is detrimental to achieving well in school, yet is very common in mathematics. I wish to challenge this Fixed Mindset and encourage children, like this Year 2 pupil, to see their failure as a way of learning.

Dweck and Reppucci (1973) suggested that if a child believes they have failed because of their lack of ability, they are unlikely to persevere in their efforts, yet a child that believes their failure is a result of motivation are more likely to put in additional effort in an attempt to achieve their goal. This is similar to Seligman's ideas. He coined the term 'learned helplessness' in the 1960s and he defined this as a point when people 'give up on a task and stop learning'; academic progress is often hindered by holding pessimistic beliefs where an individual believes they are going to fail (Morris, 2009: 95). Seligman then developed the notion that you can teach people 'learned optimism', which is likened to resilience. In other words, the teaching of resilience can overcome learned helplessness (cited in Vaughan, 2014:26). Vaughan (2014) has dedicated himself to teaching 'learned optimism' in a bid to enhance resilience in children. Making problem solving accessible to all children in a class without ability labels may encourage them to make better progress, which I discovered when observing a problem-solving lesson in Year 5 class. These pupils were placed in mixed ability tables and their effort was praised over their achievements. When speaking with some of the pupils after the lesson, I asked them what they needed to do to do well in problem solving and they responded that they had to 'keep trying and put in lots of hard work'. This highlighted that these pupils believed that their success was down to their dedication rather than innate ability; these children were 'optimistic' with regard to their ability to succeed in mathematical problem solving.

A teacher's approach to learning in problem solving in mathematics could also foster the development of resilient characteristics. I have observed and experienced the use of teachers' questioning to motivate children to persist in their problem solving. I noted teachers who used guided questioning in order to stop children from failing. Teachers need to support children in different ways during problem solving; some will require greater support and encouragement that others (Mason 2006). Encouraging children to get lost in their work is described by Csikszentmihalyi (2002; cited in Morris, 2009:126) as 'flow', when one's concentration and ability meet perfectly. This results in complete captivation in the task. In order to achieve this there needs to be an element of challenge in the task, such as problem solving. Alfrey (2003:82) states that 'children should be encouraged to 'have a go' at any mathematical problem and not be held back by worrying about failure. This was something I regularly observed with children in a Peruvian Orphanage, where they were willing to try to understand mathematical challenges, despite the language differences. Comparing this to the boys I have more recently worked with at a Preparatory School, who seem unengaged, I perceive this to be due to the formal nature of teaching. The children in the Orphanage were often taught in an informal environment, through interactive games and would be engaged for lengthy periods. The pupils at the Preparatory School were faced with laborious and formal lessons and tasks in which they could not sustain concentration. This affected their attitude to learning, particularly when faced with something challenging and unknown. Chomsky (2004) suggests that there is too much focus on the product of learning rather than the process of learning. Comparisons can be drawn between these and the two different types of learning, described previously. The Peruvian Orphanage was focused on the process of learning, whilst the preparatory school focussed on the product of learning.

Another occasion when I have experienced this was working with a Year 2 boy; he was deemed as a 'gifted and talented child', and appeared naturally able at mathematics however he seemed obsessed with finding the correct answer. On one occasion when the children were given nets of 3D shapes, the task was to describe the properties, build and name the shape. He immediately became distressed that he did not know the name of the shape. I encouraged him to focus on the properties of the shape but he knew that he could not name of the shape and began to cry. This pupil could not see the purpose of exploring the shape because he knew he would not be able to name it. Bird (2009:4) explains that attention needs to be given to how children come to answer rather than the 'final answer'. In the case described the child was unable to progress in his learning as he obsessed over finding the right answer and could not reach a state of 'flow'.

Students need to feel safe physically and emotionally in the classroom (Dirling, 1999), in order to encourage resilience. Edmonds (1979, cited in Borman & Overman, 2004:186), popularised the 'effective school model' and one aim of this model was 'achieving a safe and orderly school environment'. This is linked to healthy social behaviour, which is similar to characteristics of resilient children. Stemming from my initial masters question I have become increasingly interested in how the environment is linked to enhancing resilience, particularly in the mathematics classroom. Borman and Overman (2004:186) suggest that the most important model for encouraging resilience was the 'supportive school community model', including three main variables: safe and orderly environment; positive teacher-student relations; and, support for parental involvement. I believe that promoting autonomy and a collaborative working environment is key to this. During problem solving in mathematics on my first placement, learning was often encouraged through team work and discussion. Comparatively in my current placement, an all-boys preparatory school, children have their own desk and are often encouraged to work independently. I noted some key differences in pupils' behaviour between these two differing styles. The children in the first school appeared to be able to concentrate on their task and took pleasure in discovering answers; those in the second school were easily distracted and began to disrupt one another. Fisher (2005:178) states that 'mathematical thinking is encouraged by talking about and talking through the process and strategies used'. I believe that Fisher's point is key; communication and team work during problem solving is vital, particularly as this reflects learning and collaboration in the real world where such skills are vital. This highlights the importance of the learning environment to assist children in developing resilient characteristics.

There is a place for support and guidance in the problem-solving classroom, however there is also a place for teachers to take a step back to help students to become more engaged and invested in their learning. With this in mind, it has been suggested there should be an emphasis on learner-centred practices (Alfassi, 2004) which are common in problem solving. When using learner-centred practices the teacher can enable learning rather than be 'the source of all knowledge' (Waxman, Padrom, & Arnold, 2001, cited in Morrison & Allen, 2007:163). This is something that can be achieved through problem solving in mathematics. When considering problem solving in mathematics it has become clear to me that children will approach problem solving in different ways, depending on their prior experience and varying learning styles. It is vital to remember that children will learn and develop in different ways at different times. Exploring opportunities for nurturing resilience can ultimately only be beneficial. Ward (2012) sees the need for children to be treated as individual learners because they will need to improve different skills to foster their resilience such as perseverance, empathy or reflectivity. From my observations of problem solving in mathematics, I found that teachers who engaged the children's interest and attention, and where possible made links with their individual interests and links to the real world, were the most motivational and ultimately beneficial practitioners. This idea is supported by Edwards-Leis (2013) who comments on the importance of contextualising problem solving to promote authenticity. Giving pupils real life examples allows them to see the value of why these skills should be promoted. The example I discussed earlier of the child in Year 2, who displayed both a Fixed and Growth Mindset illustrates how he appeared to understand and engage with a problem solving task of money, as he was able to see the worth of doing this activity and made links with the wider world. This ultimately helped him to become more resilient in his workings, highlighting characteristics of perseverance and reflectivity.

Whilst the advantages of fostering resilience are clearly seen there are problems with this too. I have identified three problems that teachers are faced with when developing resilience in their classroom. Firstly, the time restrictions in a primary classroom; Small (2008) believes that allowing children the time to work through problems using their own approach, results in a sense of ownership of their learning. It is noted in the National Curriculum (DfES, 1999) the importance of problem solving and that mathematics 'can stimulate moments of pleasure and wonder when a pupil solves a problem for the first time'. However, due to the demands of this National Curriculum (DfES, 1999), many teachers are not able to give the children the thinking and reflecting time that it has been suggested they need (Ward, 2012). An extract from my learning journal reflects this:

> *Discussed with my CTM (Class Teacher Mentor) how (during problem solving) she ensured that all children were comfortable and understood the method they were using. She said that there is not enough time to for them to reflect on their method because they needed to move to the next topic. She voiced how frustrated she was that this could not be consolidated. Tuesday 10th December 2013.*

Alfrey (2003) comments that children need to reflect on their ideas and the ideas of others, in order to decipher the best method. When reflecting on my own style of teaching problem solving in mathematics during my first placement, I did not leave the children time to discuss and work collaboratively; I can now see the need for this. Johnston-Wilder and Lee (2010) explain that working on problem solving requires pupils to make and recognise mistakes and work for an extended time with others in order to come to their solution. In order to develop resilience pupils are required to be reflective and thoughtful. I have observed the benefits of reflection on learning in my current placement. For five minutes at the end of each day the pupils are required to partake in 'Examen'; a time to reflect and be grateful. Through observing and leading this process I have noted how reflection encourages them to think about how things could have gone differently and how they could have been more effective in their own learning. The benefits of identifying this allow them to approach difficulties in and outside of the classroom in different ways; this ability is seen as a characteristic of resilience (Ward, 2012). However, not all schools can/will allow time for reflection due to the requirements and pressures which teachers face.

Secondly, as well as the pressures of time, I have observed a focus on results in mathematics put forward by some parents, school leaders and the government. Many people believe that results in mathematics are the most important outcome as this allows children to successfully reach the next state of their academic journey. I agree with Johnston-Wilder and Lee (2010) that we need to educate children to use mathematics in the wider world rather than simply to pass examinations. It may be that some practitioners disregard the need for problem solving in favour of other areas of mathematics and it is seen to be too ambiguous. During my current placement the parents appear to be mostly concerned with their child's results and ensuring high results in the upcoming 11+ examinations, rather than developing their mathematical concepts and understanding. I strongly believe the mathematical foundations need to be applied and that, as I previously mentioned, higher regard should be placed on their process of learning, rather than the product of their learning. Whitehead (1989:44) refers to this dilemma as a 'living contradiction', when someone contradicts their values in action. Many teaching practitioners have conflicting priorities and will not see opportunities to nurture the process of learning as essential.

Thirdly, the answer-orientated nature of the mathematics curriculum, where answers are often right or wrong, does not allow for these characteristics to be developed. There is an emphasis on teaching procedures to children rather than conceptual understanding (Frid & Sparrow, 2009). This does not allow for resilience to be nurtured through problem solving and making mistakes. It is important to recognise the need for this and Paterson, Tyler and Lexmond (2014) go so far as to suggest that character and resilience should be incorporated into initial teacher training and CPD programmes.

Conclusion

Although I can appreciate the problems teachers face and the priorities they have when using problem solving in the classroom, I assert my position that problem solving can enhance resilience. Through evaluating my position I am able to use this to further develop my own ability to foster resilience in pupils during mathematics. It is important to bear in mind that teachers who are stressed or demoralised are seen to make poor role models for students (Foresight Mental Capital and Wellbeing Project, 2008). I intend to model to my pupils resilience in problem solving tasks. I believe that a higher emphasis needs to be placed on the opportunities to nurture resilience through problem solving in other areas of the curriculum. It is heartening to see that in the aims of mathematics in the National Curriculum (DfES, 2014:3) state that all pupils should be 'breaking down problems into a series of simpler steps and persevering in seeking solutions'.

Resilience is necessary in order to use mathematics beyond school rather than just pass examinations. In order to reduce mathematical anxiety and increase confidence, attitudes from some teachers and pupils need to change. This can be done through problem solving; encouraging children to persevere, encouraging them to challenge negative self-perceptions of their ability, encouraging teachers to motivate and adapt their approach to teaching problem solving and ensuring the physical learning environment is set up to encourage autonomy, independence and resilience.

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Students as Active Participants in Curriculum Design: Exploratory Implications for Career Path Choices

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Abstract

The purpose of this paper is to explore whether students´ participation in curriculum design influences their career path choices (Bleakley & Brennan, 2011). In higher education student as active participant in curriculum design is an on-going debate. Some researchers have called for greater student participation in the design of the curriculum (Baxter Magolda, 2009; Bovill, Morss & Bulley, 2009; Butera, Gomes & Harris, et al., 2013). Others argue that there are potential challenges and suggest further research in this field (McLeod, 2011; Reynolds, Sclater & Tickner, 2004). Despite the large amount of research on the subject, there is limited research that has explored whether Business Management students participation in curriculum design influences their career path choices.

Semi-structured interviews were conducted with 14 Business Management Studies students in a single UK higher education institution, to ascertain how they have been encouraged to participate in curriculum design and whether participating in curriculum design has influenced their career path choices. The findings suggest that students' participation in curriculum design has contributed to them taking more responsibility for their own learning in order to achieve their chosen career paths.

Key words

Curriculum design, student's participation in curriculum design, career path choices

Introduction

Student participation in curriculum design[1] dates back to Dewey (1916). Within the literature there is a range of rationales for involving students as active participants in the design of curriculum (Bovill et al., 2009; Kolb, 1984). Some have found that students' participation in curriculum design contributes to students taking more responsibility for their own learning (Hooks, 1994) and commitment to learning (Bovill & Bulley, 2011; Kuh, Kinzie, Schuh & Whitt, 2010). Others argue that where students have participated in curriculum design, they developed improved levels of confidence, satisfaction and critical thinking (Kumar, 2007; Senior, Ready & Senior, 2014). The review of literature found positive links between student participation in curriculum design and engagement (Bovill, Bulley & Morss, 2011; Finn & Zimmer, 2012); empowerment (McLeod, 2011; Shafaei & Nejati, 2012) and employability skills (Knight & York, 2006; Senior et al., 2014). The evidence suggests that the consequences of not involving students in curriculum design is that they will feel less connected to the curriculum and their learning suffers (Konings, Brand-Gruwel, & Van Merriernboer, 2010).

The QAA Code of Practice (2010) assuring and enhancing academic quality and student engagement in higher education stipulates that higher education providers promote active involvement of students in all aspects of their learning such as, curriculum content, programme and curriculum design. Most UK higher education institutions have policies to encourage students to take an active role in their learning. For instance, St Mary's University Quality and Student Experience Enhancement Framework and St Mary's University Student Programme Representative Handbook actively promote ways student voice is heard and acted upon. This pilot study will explore whether students' participation in curriculum design influences their chosen career paths.[2]

Research Aim

The aim of the research is to develop our knowledge and understanding of whether students as active participants in curriculum design influence their career path choices.

Research Objectives

- To identify how students are encouraged to be active participants in curriculum design.
- To ascertain whether students' participation in curriculum design influences their career choices.

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1 *Curriculum design is, in the words of The UK Quality Assurance Agency for Higher Education [QAA] (2010) a creative and often innovative activity.*

2 *Career paths are a variety of trajectories and individual is willing to take in an organisation that fulfils her career needs (Petroni, 2000; Vos et al., 2007).*

Research Questions

In light of the research aim and objectives, the study seeks to address the following research questions:

- How are students encouraged to be active participants in curriculum design?
- Does students' participation in curriculum design influence their career path choices?

Students' participation in curriculum design

Research-based literature reviewed have found positive links between students' participation in curriculum design and critical thinking and improved grades (Carini, Kuh & Klein, 2006; Finn & Zimmer, 2012), understanding of the learning process, collaborative learning, improved confidence and motivation (Bovill & Bulley, 2011; Cook-Sather, 2008).

Trowler and Trowler (2010) state that the Higher Education s Academy (HEA) encourages students being involved in curriculum design. The National Union of Students (NUS) and HEA collaborated on a joint project, Student Engagement Project 2010, to support institutions and students' unions involving students in curriculum design and their learning experiences. However, questions have been raised about whether students have enough subject knowledge to meaningfully contribute to curriculum design (Slembrouck, 2000). Research suggests that responding sensitively to the diversity of the views of students is very important in the process. The benefits of involving students in curriculum design outweigh the challenges (Bovill, et al., 2011; Hooks, 1994; Kuh et al., 2010).

Positioning students as important stakeholders has been traditional practice at St Mary's University, Twickenham. Students are given opportunities to contribute their opinions about their learning experience. St Mary's University understands that student learning outcomes can be influenced by providing students with a range of knowledge, skills, and opportunities and encouraging them to contribute to curriculum planning and design. There is still little known whether students as active participants in curriculum design influence their career path choices.

Career Paths

The traditional career model concept of a career path conceptualises it as a vertical progression by an individual within an organisation hierarchy determined by the organisation (Kanter, 1989). The boundaryless career model conceptualises a career path as vertical and non-vertical moves determined by an individual's values, needs and decisions between personal and professional life (Arthur, 2014; Arthur & Rousseau, 1996; Sullivan & Baruch, 2009). From this perspective the individual's career motives and values influences his/her selection and choices of their career paths (Arthur, 2014; Arthur & Rousseau, 1996; DeFillippi & Arthur, 1994). DeFillippi and Arthur (1994) and Arthur and Rousseau (1996) posit that individuals are taking responsibility for accumulating and developing marketable skills and competencies in order to determine their career paths due to changes taking place in the economy and labour market such as:

1. Organisational restructuring (downsizing and de-layering) has led to the reduction of the workforce and the number of hierarchical tiers within the organisational structure;
2. Technological advances in communication and information technology have led to changes in flexible forms of working; and,
3. Demographic and labour market changing. The population is aging; individuals are staying on at work longer even after they have reached the state retirement age and this is impacting on the labour market (Arthur & Rousseau, 1996).

DeFillippi and Arthur (1994) suggest that in order for an individual to pursue a successful boundaryless career path, it is crucial that the individual acquires the skills and competencies to know why, whom and how to develop their career paths. DeFillipi and Arthur (1994: 309) employ the phase "intelligent career model" to describe the knowledge, skills and competencies required for the selection and choices of career path by the individual.

The intelligent career model emphasises a focus on individual's acquiring knowledge, skills and consideration of how these skills can be applied to develop their career paths (Bredin & Söderlund, 2013). In this regard, the acquisition of information, knowledge, competencies and employability skills are essential, enabling the individual to seek employment opportunities available in the wider labour market. Arthur and Rousseau (1994) described the intelligent career as unfolding through three 'ways of knowing':

- "Knowing-why": Knowing why competencies relate to individual's personal values and motivation. These competencies provide the individual with a sense of purpose, career clarity, and identification with the world of work;
- "Knowing-whom": Knowing whom competencies are network relationships that individuals have inside and outside organisational boundaries in order to develop contacts and reputation which can assist them to progress their career; and,
- "Knowing-how": Knowing how competencies encompass the skills and knowledge individuals accumulate over time through learning and work that is transferable across organisational and occupational boundaries.

Developing these competencies gives individuals skills and knowledge they need to acquire to enable them to self-manage their career paths (Arthur, 1994). Thus, their individual loyalty is owed to their career interest and needs. Supporting this viewpoint, Sodergen (2002) argues that individuals are more interested in gaining opportunities and accumulating knowledge to make career path choices. The focus for individuals is to develop skills and knowledge which are applicable in employment position of their choice.

However, some authors contend that Arthur's (1994) three competencies do not encompass all of the necessary competencies that are important in developing a career path that is self-managed by the individual (Coetzee & Roythorne-Jacobs, 2007). Coetzee and Roythorne-Jacobs (2007) suggest additional three competencies. These are described as follows:

- "Know-what": Knowing what competencies refer to job opportunities and job requirements that the individual may address when applying for new jobs;
- "Know-where": Knowing where competencies are the relevant information gathering process, required to understand the training and advancement opportunities before entering the workplace; and,
- "Know-when": Knowing when competencies refer to the timing of job searching activities that can assist the individual in acquiring the right job.

These additional contributions to the intelligent career model emphasise the need for individuals to understand their strengths and aspirations in order to manage their learning and career paths in the changing employment environment. For instance, if an organisation is no longer able to offer an individual a career path that is suited to the individual's needs, the individual acquires knowledge, information and marketable skills that will make it easier for them to pursue a career path that is suited to his or her needs within the wider employment market (Coetzee & Roythorne-Jacobs, 2007). Sullivan and Baruch (2009) contend that one of the advantages of the intelligent career model is that it can be beneficial to individuals with the right competencies and skills which are applicable in different organisational contexts as the opportunity arises. The intelligent career model is chosen for the purpose of this research, because the model has proved to be regarded as being valuable when assessing how individuals acquire skills and knowledge required to pursue their preferred career paths (Arthur & Rousseau, 1996; Maher, 2009).

Methodology

The methodology for this research was designed to allow the collection and analysis of data on whether students' participation in curriculum design influences their career path choices. The intent of this process is to answer the research questions and for the research to further the body of knowledge and understanding of the link between students as active participants in curriculum design and their career path choices.

Research Approach

The approach adopted for the research is the inductive approach (Bryman & Bell, 2011). An inductive approach allows for information and data to be collected, classified and potential theory or theories developed as a result of the data analysis. Proponents of this approach assert the need to not simply establish a cause-effect relationship between variables "without an understanding of the way in which humans interpret their social world" (Saunders, Lewis & Thornhill, 2009: 37). This research is based on a small sample of St Mary's University Twickenham, Management Studies students' experience of participating in curriculum design. During the interview, participants recount experiences out of their own perspectives and interpretation of events of how they have participated (or not) in curriculum design (Bryman & Bell, 2011).

Data Collection

The research adopted a cross-sectional data collection approach. Data was gathered over a two month period (April-June 2014). Given the aim and objectives of the research, the research questions and insufficient prior research on the subject matter, the researcher decided to employ a qualitative approach (semi-structured interviews). Semi-structured interview technique allows for a degree of flexibility for the participants to expand on their responses. It allows the researcher to explore and understand the range of feelings, attitudes and motivation expressed by each participant, enabling them to gain a better understanding of each individual account of their experience of participating in curriculum design. Also the advantages of one-to-one semi-structured interviews are that participants can talk freely about their perspectives and perceptions without being restricted in time or being observed by the presence of a third person. According to Saunders et al., (2011) the value of using qualitative research (semi-structured interviews) hinges on the flexibility it offers to explore the complexity of the subject matter. Therefore, as long as the research questions fit in with the research aim and objectives this approach can provide productive results.

A small sample of face-to-face semi-structured interviews was carried out with 14 Business Management students (see Table 1.1). Interviews ranged from 35-65 minutes.

Table 1.1 Participants in Semi-structured interviews

Participant	Level	Gender	Age	Ethnicity
A	4	F	18	White-British
B	4	M	19	White-British
C	4	M	19	Asian-British
D	4	F	18	White-European
E	5	M	20	White-British
F	5	M	20	White-Irish
G	5	F	21	Black-British
H	5	F	20	Black-British
I	6	M	22	White-British
J	6	F	21	White-British
K	6	F	22	White-British
L	6	F	21	Asian-British
M	6	M	22	White-Irish
N	6	M	21	White-European

The sample comprised of seven female and seven male students, all of whom are registered on the Business Management Programme at St Mary's University, Twickenham. The type of sampling used for this research is purposive sampling; this is where the researcher uses his/her own judgement to select cases that will best enable the research questions to be answered. This is an appropriate method to use when participants are required to have some understanding and experience of the subject area (Saunders et al., 2011; Bryman & Bell, 2011) which applies in this research context. This method of data collection is highly recommended for exploratory research such as this study (Bryman & Bell, 2011).

Interview Process

At the beginning of the interview the researcher explained the purpose of the research and why the participant was selected. Each participant was given time to ask questions about the research before the interview started. A series of questions was designed to collect the participants' demographic details and their experience of participating in curriculum design. The interview questions were designed to ascertain students' understanding of curriculum design and how they have been encouraged to participate in curriculum design. The notes from the interviews were comprehensive and gave data which answered the research questions. Data quality issues, such as reliability and validity attached to interviews were taken into consideration; to some extent, semi-structured interviews are deemed (Saunders et al., 2011) to make a better case for reliability as it uses a slightly standardised approach. However, the claim to absolute reliability in qualitative research cannot be made (Saunders et al., 2011; Silverman, 2013). Validity issues were enhanced by the use of open questions; this allowed the researcher and the participants to explore and confirm understandings to a greater degree than is possible when using a survey method.

Method of Data Analysis

On completion of the interviews, the first stage of the analysis involved a process of familiarisation which began by reading through the notes taken at the interviews noting the content and meaning and looking for meaningful analysis. Therefore, in order to identify key issues and emerging issues raised by the participants, a thematic framework was constructed from the information gathered from the interviews. The framework consists of three charts (Ritchie & Spencer, 1996) which are based on research question themes: curriculum design; participation in curriculum design; and, career path choices. This was developed to specify the data as a whole to consider the range of responses for each theme. The charts were reviewed for opinions participants expressed as to the importance of being involved in curriculum design. These were lifted onto another chart to assist in the preparation for discussions, conclusion and recommendations.

Ethical Issues

Ethical considerations in education and management research are paramount in order to avoid any risk to the physical, psychological, health and social wellbeing of the participants (Babbie, 2007; Bryman & Bell, 2011; Saunders et al., 2011). Before commencing data collection, the researcher verbally informed each participant of the purpose, benefit of the study to the University and the Higher Education sector, and where the findings would be presented and published. All participants stated their willingness to participate in the research. To maintain anonymity, participants are identified by an alphabet letter. This was to ensure that readers of the research could not identify the views of specific individuals.

Methodological Limitations

The present study is a small step towards a better understanding of whether students' participation in curriculum design influences their career path choices. One of the limitations of the research methodology relates to the selection of the sample. The findings need to be reviewed with some caution as all the participants were undergraduate Business Management students from one UK University. It was not possible to select participants randomly from all UK Universities because of the limited resources and the time to complete the research.

Data Analysis and Findings

The research findings and discussions will be presented under the headings of the research questions. The findings serve the purpose of guiding Programme Directors, module convenors and lecturers in our reflective attempts to improve curriculum design by involving students for their benefits and to achieve a higher quality of teaching and education for students.

RQ1: How are students encouraged to be active participants in curriculum design?

Most participants reported that they have been encouraged by lecturers to participate in selecting the course text book, designing module questionnaire feedback, completing module evaluation forms and choosing the topic for their research project. This was supported by statements such as:

> "I was asked to help with designing a feedback questionnaire for MGTXXX … we worked in groups and said what we think. We gave our views and made suggestions …. I enjoyed it" (Participant: K).

> "I was asked last year if there was any particular textbook that I found helpful for MGTXXX …. I said I found xxx easy to understand … and this year it's one of the books on the recommended reading list" (Participant: E).

> "At the end of term I complete a module evaluation form for each module … I said what I want to say about lectures and things I've learnt in lectures and that … I sometimes make suggestions about lecture times … some start too early and hardly any one comes … I've said start lectures at 10am and more people will come … this term some lectures were starting later … good turnout … more people come" (Participant: F).

These statements suggest that students have been encouraged to contribute to several areas of curriculum design. On the whole, students held a positive view of how they have been consulted. The evidence supports Cook-Sather, (2008) and Bovill et al., (2011) views that involving students in curriculum design enhances students' understanding of the learning process. The findings also reveal that St Mary's University Quality and Student Experience Enhancement Framework (to actively engage students so that the student voice is heard and acted upon) are being implemented and benefiting students.

RQ2: Does a student's participation in curriculum design influence their career path choices?

Over half of the participants reported that they have participated in programme meetings where they suggested activities to be include in the curriculum. Some of their suggestions include inviting guest speakers, fieldwork, visits to companies and student projects involving collaboration with external agencies.

Some participants reported:

> "I want to work in HRM [Human Resources Management] I said to my lecturer if we can meet HRM managers to get an insight into what they actually do … it has been arranged … I'm going to shadow a HR manager in a few weeks' time" (Participant: G).

> "I've chosen the work placement module … we were told to find a company … a placement in the field we would want to work … my placement was in a charity at XXX. I enjoyed working there. The experience will look good on my CV when the time comes to look for work" (Participant: L).

> "We are given the freedom to make decisions about our research project. You see I'll like to go into finance … work for one of the banks in the city … so it was important to me that my research is in this area. When I told my tutor my topic she agreed straightaway" (Participant: J)

Participants G, A and J statements clearly show that students' participant in curriculum design helps them to gain the knowledge required for their chosen career path. These participants identified areas within the curriculum that will give them skills and knowledge they require to develop for their chosen career paths. The evidence supports DeFillippi and Arthur's (1994) view that individuals are acquiring information, knowledge and competencies essential to enable them to seek employment opportunities and to pursue their career path choices. In addition, several participants commented that they have been consulted on topics they want to be included in some modules to help them achieve their career path choices.

These participants reported:

> "A management role is like being Jack of all trades… being flexible with your job role … I like to have a say in what is included in the curriculum … so that I'm prepared … when I graduate … don't get me wrong our tutors are great … it's my career on the line here … I've done my research… I know what skills the companies want out there" (Participant: H).

> "I would like tutors err...err.. to consultation with us [students] before the scheme of work is put into the handbook. We know what we want to do … I want to be a marketer … some marketing options will be nice (Participant: M).

> "I'll like module convenors at the end of semester to discuss more of what we are going to learn next semester… how our leaning will help us to develop skills for personal development and industry. Employers are looking for us to have certain skills when we go for interviews … it all helps" (Participant: I).

These participants wish to be encouraged to contribute more to discussions about course content and a range of learning opportunities. They are clearly motivated and interested in participating in curriculum design that will help them meet their career needs. The findings support Coetzee and Roythorne-Jacobs's (2007) view that individuals are accumulating competencies before entering into the work place. However, contrary views were expressed by some participants; they reported that they have not been asked to participate in curriculum design.

> "No one asked me about curriculum design ... I completed module evaluation forms to say what I think of the module ... that's all" (Participant: B).

> "Curriculum design .... Isn't the role of the teacher ... yeah ... it's for them the teachers to do ... I wasn't asked to help in no curriculum design" (Participant: D).

Participants that reported that they were not consulted about curriculum design were mostly level four students who did not always understand what curriculum design means. Although these participants reported being unfamiliar with curriculum design they spoke at length about what they hope it might mean and their desire to be consulted in curriculum design. Such comments are helpful to lecturers in rethinking how to involve level four students in curriculum design.

Conclusion

The research has identified that students are actively participating in curriculum design by choosing course text books, topics for their research projects, identifying guest speakers from industry, work experience and placements. The students are aware of why, whom, when, where, how and what competencies (Arthur & Rousseau, 1994; Coetzee & Roythorne-Jacobs, 2007) they need for their career choices. This is evident in the participants' responses. The students' participation in curriculum design has contributed to them taking more responsibility for their own learning in order to meet their career path needs. The research shows that St Mary's University's Quality and Student Experience Enhancement Framework (to actively engage students so that the student voice is heard and acted upon) are being implemented, except in some occasions where level four students have not been inducted on how they can participate in curriculum design.

Therefore, if Higher Education Institutions want students to participate in curriculum design, Programme Directors, lecturers, student union officials and support services staff should inform and prepare students during induction week of the process and benefits of participating in curriculum design. Such an approach might enable students to become more meta cognitive about their own learning, development and pursuing career path choices. In addition, curriculum planners might want to ask these questions at the start of the planning process:

- What type of career paths are students going on to?
- What should be included in the curriculum to prepare students for future careers?
- Have we built-in opportunities for flexibility in the curriculum to support students to gain the skills and knowledge required by changes in industry?

Students should be supported and encouraged throughout their time at university to relate their learning to their career path choices as an ongoing process. The research findings provide insights on how students' participation in curriculum design benefits them in pursuing their chosen career paths. However, the findings are based on data from Business Management students of a single institution in which some of the findings are specific to that institution. However, students' benefits of actively participating in curriculum design are likely to be generalisable beyond the case study institution. It is anticipated that future research will include data from a larger cohort in order to develop guidelines and recommend practical steps and policies that will promote and support students to actively participate in curriculum design.

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Book Review

Michael Fullan (2001). *Leading in a Culture of Change*. San Francisco: Jossey-Bass.

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Change is a concept with which we are familiar. It is invigorating and exciting for some, daunting and intimidating for others. With such extreme and opposing reactions to change possible, how can it be led successfully within the workplace? Michael Fullan's *Leading in a Culture of Change* (2001) aims to answer this question.

Fullan's (2001:2) main thesis is to demonstrate how we can all improve our leadership capabilities 'by focusing on a small number of key dimensions'. There are five dimensions explored within the text which include understanding change, the importance of establishing a moral purpose for change, building and maintaining positive relationships, and creating knowledge and coherence amongst colleagues (Fullan, 2001:4). Perhaps one of the most encouraging aspects of the text is that Fullan's (2001:2) advice is accessible for all readers, whatever their current level of management or leadership because the successful practice of the five dimensions are attainable for all, not just a 'few who are destined to be extraordinary'. Fullan is successful in demonstrating this as he chooses to focus on the importance of developing positive and empowering relationships within the work place and the collaborative effort that is required for an organisation to succeed. These actions include every member of an organisation in the leadership of change. Throughout the text Fullan cites examples of change leadership within business organisations and schools in the United States (US) and United Kingdom (UK) to illustrate the five dimensions of his theory.

After an introductory chapter which signposts the remainder of the text and sets the importance of managing change in context, Fullan's theory is presented in chapters which look at each dimension in turn. The final chapter reasserts the importance of relationships within the workplace and offers some wise but cautionary advice on ensuring that leaders allow their colleagues time to slow down and engage in careful thinking when implementing change. Fullan's advice here is influenced by the work of Claxton, with his final chapter title 'The hare and the tortoise' almost certainly inspired by Claxton's 'Hare brained, Tortoise Mind' (Claxton 1997).

The central concept throughout Fullan's work is the importance of relationships. There is an emphasis on the understanding that, in the main, the work place consists of colleagues working in teams to one degree or another and therefore it is essential that leaders are conscious that they are working with people who are emotional beings. For this reason 'leaders must be consummate relationship builders with diverse people and groups' (Fullan 2001:5) if they are to be successful when leading change.

There is much strength to this text which ensures that it is a valuable contribution to the discussion of leading change and change management. Fullan draws upon a wide range of additional theory from reputable researchers and well-known practitioners in their respective fields, such as Claxton (1997), Goleman (1995, 1998, 2000) and Palmer (1998) in order to support his thesis. The text provides a comprehensive starting point for research into leadership methods which focus on emotional intelligence and critical thinking and also delivers a detailed critique on the leadership of education initiatives within the US and UK.

Fullan is successful throughout his work in emphasising and highlighting to the reader the importance of establishing a clear moral purpose defining the need for change. This is an important starting point and can only be conveyed effectively to others in the workplace through a network of secure and positive relationships. Fullan's success in communicating these concepts may be attributed to his carefully chosen examples of change management and leadership in each chapter which are critiqued by the author and supported by appropriate research conducted around the strategy or change initiative.[1]

Fullan's work is distinguished through the inclusion of vocabulary such as 'responsibility', which is used when discussing key aspects of leadership. As noted earlier, this implies that the responsibility for leading change lies not only with those in positions of power and authority, but also with all the colleagues that change will affect. An interesting example of this can be seen during Fullan's critique of the National Numeracy and Literacy strategy in England where he discusses the difference between the internal commitment of colleagues to change verses external commitment, which usually applies when colleagues see change as imposed 'from the top down' (2001:20). This is an important distinction to observe as the subtle, yet powerful differences between internal and external commitment from employees can make all the difference to the successful implementation of an initiative.

With this point in mind, it is prudent to note areas where Fullan's discourse on the commitment of employees and their working relationships with leaders could be more explicit within the text. Although the subject of relationships and moral purpose is key to the central argument of Fullan's theory, there is little or no discussion on how leaders may develop the kind of relationship with their colleagues required when seeking to implement change in a positive manner.

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1 *For examples, see the critiques on the Oak Valley English and Social Studies departments on page 68 of 'Leading in a Culture of Change' and the implementation of the National Numeracy and Literacy strategy in England on page 20.*

Of course it may be argued that Fullan cannot cover such a topic in depth within this book as to do so justly would require the work to be much larger and may result in the text becoming too focused on relationships instead of distributing the discussion equally across each of the five dimensions.

There are some very interesting points made within the chapter on relationships regarding a reading programme brought into San Diego's school districts in the United States which may have been developed. When naming this case, Fullan (2001:62) mentions the 'tough empathy' used by the leaders who were responsible for implementing the reading initiative but does not provide any further examples of what is meant by the phrase or how the leaders used their relationships with colleagues to bring about the changes required. Research conducted by Stanford University is cited by Fullan to show that whilst there were some positive changes brought about by the reading reform, 'some principals and many teachers object(ed) to the top-down way in which the reforms have been introduced' (Stanford University, 2000b cited in Fullan 2001:61). Therefore there were also obvious tensions surrounding the implementation of the scheme. Whilst the case study highlights to the reader the importance of ensuring that initiatives are not viewed as being 'top-down', making again the case for all colleagues to engender a sense of internal commitment to changes being made, there is no theory offered on how to avoid colleagues feeling despondent about a reform or that 'something is being done to them' (Fullan 2001:62).

There are some assumptions made about the nature of schools and businesses in the book, with which not all readers will agree. For example, the notion that 'businesses do not have souls and schools do not have minds' (Fullan 2001:51). In short, Fullan states that businesses are rarely concerned with the moral purpose surrounding their work, whilst schools may have a stronger sense of purpose but 'are terrible at learning from each other' (Fullan 2001:92). However, many teaching professionals would argue that there are projects within England that encourage schools to learn from one another. Indeed, the National College for Teaching and Leadership's recent publication 'Closing the Gap with the New Primary National Curriculum' (2014), specifically encourages schools to learn from cited good practice that they have observed throughout England. Of course this knowledge sharing within education can be improved in many ways and perhaps this is what Fullan refers to when extorting schools to learn from one another, but to say that they are terrible in doing so may be an unfair criticism.[2]

Overall, Fullan's thesis (2001) in *Leading in a Culture of Change* is successfully presented. The five key dimensions of leadership of moral purpose, understanding change, building relationships, sharing knowledge and creating coherence, are carefully communicated. This means it is possible for all professionals to 'internalise what makes for effective leadership in complex times' (Fullan 2001: 45), thereby creating opportunities for all colleagues to be involved in the successful implementation of change. The book is clear in its message that these five dimensions are not a step-by-step plan that can be followed in an arbitrary manner to achieve positive results in the workplace. Instead it is imperative that the dimensions are complemented with careful thought and emotional intelligence, which are necessary for careful leadership during change. Fullan states that change cannot be managed but it can be led and argues that there are too many confusing theories already in the field of leadership which are difficult to understand and even harder to follow (Fullan 2001:49). Therefore Fullan's (2001) theory provides an alternative viewpoint from which to look at change leadership. The five dimensions provide a leadership strategy that is well researched and contains intellectual rigour, yet the theory is also underpinned with the understanding that people are complex and emotional beings who cannot be led by strategy alone. As a reader I found this combination an attractive one and whilst not in a position of leadership yet, the encouragement to seek to master the five dimensions so that I may play my part in the successful implementation of possible future change was inclusive and made the text all the more relevant. This is not just a book for leaders in the traditional sense of the word; it is a book for all.

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[2] *'Education action zones' and 'Excellence in Cities' zones, were established in some regions of England on the 1st September 1998 onwards. Amongst other initiatives, they were responsible for promoting good teaching practice between the schools included in the zone.*

Guidelines for Contributors

Submissions are welcome from early years, primary, secondary and higher education sectors. Contributions are encouraged from any country and it is expected that the Journal will publish articles that offer readers insightful, inspirational as well as practical information about teaching, learning and assessment across the curriculum.

The normal word limit for articles is 3000 words although up to 5000 words will be permitted in exceptional circumstances. We would welcome the opportunity to publish articles that describe good practice in schools, literature reviews that increase understanding of particular educational domains, research articles that explore new ideas, and articles from practitioners that demonstrate the contribution that reflective practice and informed action can make to effective teaching.

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Many teachers and students write assignments that include literature reviews or that report on inquiries into aspects of their practice undertaken in a range of settings. These pieces of writing could be considered for submission. Ensure you provide an abstract and key words and reference according to the Harvard Method of Referencing. Contact the editor for guidance and support in converting your assignment piece into a journal article.

Notes For Research Articles For Submission

It is expected that research articles make an original contribution to education research. They should be based on evidence such as newly acquired data through empirical research, historical data, or published work.

Sharing Good Practice And School Projects

Great things happen in schools. Teachers and head teachers are encouraged to share their practice with the education community through descriptions of projects that they have created, implemented and evaluated. While these pieces are not necessarily expected to be supported by evidence from the literature (as a research article would be) the theories that underpin the practices described should be included to demonstrate informed pedagogy.

Preparation of Articles

Title
Please write a succinct title and include author/s, affiliations and email address of lead author.

Abstract
An abstract should be 200-250 words. It should have 6 key words for reference purposes. The abstract should provide the argument put forward, a rationale for the research, method used and major findings/recommendations. A good practice abstract will include an explanation of the project (length, participants, curriculum focus), its purpose and pertinent outcomes.

Article format
The article should include the abstract, all figures, tables and reference list. Do not include a bibliography. It should be typed on A4 portrait in Word and pages should be numbered. Use Times New Roman (or similar serif font), 11pt font typeface. Headings for each section are recommended to guide the reader. Avoid footnotes and endnotes unless essential to clear communication. All figures and tables must be numbered and labelled and be on separate pages rather than embedded in the text. Indicate where they are to be inserted. Avoid grey or coloured shading on graphs. If photographs are to be included then ensure that you have both ethical approval for publication (this is particularly necessary for children) and copyright approval.

Referencing
The article is to be referenced and the Reference List compiled using Harvard Method of Referencing.

Figures and photographs
Please ensure you have the appropriate ethical approval to use photographs. Photographs and images should be of the highest resolution to ensure a high standard of reproduction.

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