

Olivia Gillard

Canterbury Christ Church University,
Canterbury, United Kingdom
oliviagillard@outlook.com
ORCID ID: 0000-0002-5180-6261

The Role of Virtual Experiences in Increasing Knowledge, Motivation, Independence and Cultural Capital from Disadvantaged Pupils in England

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ABSTRACT

Objective: To investigate the impact of virtual learning experiences (VLEs) in school amongst disadvantaged 9 to 11-year-olds: specifically, do virtual experiences increase their knowledge, motivation and independence in learning about a topic, and does this increase their cultural capital.

Methodology: Participants explored virtual experiences on countries around the world, with the number of facts learnt before and after recorded. Questionnaires were also completed to record views of virtual experiences.

Findings: Findings suggest virtual experiences were successful in teaching participants new information, and increased their independence and motivation to engage with learning, and thus could be successful in increasing cultural capital. Significance difference testing revealed that disadvantaged pupils recorded fewer facts than non-disadvantaged pupils, and therefore virtual experiences were not sufficient to close this disadvantage gap.

Value Added: The value of virtual experiences being woven into curriculums is discussed as a platform for teaching cultural knowledge.

Recommendations: Virtual learning experiences should be considered a core resource for teachers when planning and should be embedded into the curriculum to enhance learning experiences for disadvantaged pupils. Further research should continue to explore the use of VLEs in Primary schools, and the impact of VLEs on cultural capital.

Key words: cultural capital, education, virtual experiences, disadvantage, inequality

JEL codes: I24

Introduction

Within England, educational disadvantage is of high prevalence, such that disadvantaged children (defined as pupil premium pupils who receive free school meals from the Government due to a low household family income (Gov, 2020)) are significantly behind their more affluent peers. It is believed that pupil premium pupils are academically 18 months behind their peers when they take their GCSEs (exams taken at 16 years old, results of which are likely to influence future prospects). Furthermore, with less than half of disadvantaged pupils meeting their age-related expectations by the time they are 11 years old, they are also three-times more likely to be excluded from school (Teach First, 2020).

Teach First, a charity which aims to train teachers and leaders to challenge this disadvantage, places teachers in England's most deprived areas to work to address this disadvantage gap: I am a Teach First ambassador, completing my teaching training through the charity and working in two of England's most deprived coastal areas.

Middle leaders, those who work under senior leadership and support in the delivery of whole school visions, in English primary schools (schools educating pupils between 4 and 11 years old) have been recognised as being one of the most influential individuals in making a difference in schools (Hammersley-Fletcher & Strain, 2011), working as the middle communicator between the senior leadership (headship team), and the teaching and support staff. Within 2020, I was a middle leader of upper key stage two (9 to 11-year-olds), leading the teaching team of six classes and writing a thesis on Educational Leadership (Gillard, 2020), when schools closed due to the COVID-19 global pandemic. This thesis took full advantage of opportunities opened by the closures, which forced pupils to engage with remote learning and ensured that pupils had to engage in their education online. During the online learning, I presented pupils with virtual experiences – experiences they are unlikely to otherwise encounter (exploring other countries virtually, for example) – in the space of their own homes. Since the time of writing, I remain working in a heavily disadvantaged coastal school, now as a member of the senior leadership team. This article therefore focuses on what can be learnt from such a period, discussing the extent to which educators and disadvantaged pupils would benefit from including virtual experiences in their curriculums, specifically as a platform for increasing cultural knowledge, motivation and independence in learning, alongside the benefit of transformative leadership in reducing the disadvantage gap for pupils.

Critical Literature Review

The following literature review summarises academic research across both leadership in schools and cultural capital, deriving an

initiative for change that utilises technologies and virtual experiences to positively impact disadvantaged pupils.

Leadership in schools

Transformative leadership (Shields, 2010) is a leadership style specifically proposed for educational settings that is reflective of the wider social and moral environments within a school's education system. It is reflective of education being not only academic success, but also the ability to participate in society (Shields, 2009), and therefore school leadership should account for the social, cultural and academic needs of the pupils. Transformative leaders find themselves facing a challenge in the tension and inequality amongst pupils in their care, and should work to release every child's potential, recognising the benefit on society that each pupil could have. Case studies of schools that had adopted a transformative leadership structure, culture and pedagogy found that the experience of school life increased for pupils, alongside their test scores.

Transformative leadership theory is therefore, given the educational disadvantage in England, one that clearly recognises the challenge that leaders in areas of educational disadvantage face, and given the personal context at the time of this research project and at present, is also the leadership style I resonate most closely with. If school leaders cannot show passion and outrage at the predisposed life chances of those who come from a low-income family, how can schools ever address the disadvantage gap that is evident in everything from the contents of a pupil's pack lunches to their academic success?

It is not a theory without its limitations, however. The theory is still clearly in its youth when compared to the more traditional transformational leadership (Robbins & Coulter, 2007) and transactional leadership (Odumeru & Ogbonna, 2013) approaches, both of which are discussed at length in my previous thesis (Gillard, 2020), and have been recognised as being effective within the educational literature (e.g. Bogler, 2001). However, in a chapter that is written to analyse strategies at reducing such a gap, a transformative leadership approach is considered the most appropriate for schools which have an inbuilt understanding of such



disadvantage, and with leaders who are willing to challenge the predisposed outcomes.

Cultural Capital

What is it?

'Cultural capital' was first used to define how power in society was transferred and social class was maintained (Cultural Learning Alliance, 2019), with different sources of cultural capital identified over time. Bourdieu (1984) defined objective, embodied and institutionalised forms of cultural capital. Objective refers to what you own or have witnessed: cultural goods, exposure to literature and works of art. Embodied cultural capital is your development of language, your mannerisms and the quality of your preferences and hobbies, whilst institutionalised cultural capital refers to your qualifications and education credentials. These forms of cultural capital have continued to evolve over time, with technical cultural capital also of relevance to a 21st century society, referring to marketable skills such as your use of computers (Bennett et al., 2009).

Ofsted, the inspection service for the quality of education provided in schools (<https://www.gov.uk/government/organisations/ofsted/about>), released its most recent school inspection framework (guidance as to what schools should be providing for their pupils) and for the first time, it referenced the importance of providing children with cultural capital: an ambitious curriculum should be constructed such that it is "designed to give all learners, particularly those most disadvantaged... the knowledge and cultural capital they need to succeed in life," (Ofsted, 2019, p. 9). They do not provide a clear definition with regard to what its expectations are for this provision, however I would argue that the needs of the pupils in every school are distinctly different and therefore it is intentional to give educators the power to implement the teaching of cultural capital that is most beneficial to its own pupils. The needs of cultural knowledge are likely to significantly vary between pupils attending an international school, to those with high proportions of free school meals pupils, for example. The following definition of a pupil with cultural

capital, is outlined in an article by the Cultural Learning Alliance (2019), and is therefore the definition that will be used going forwards in this research project:

Someone with good cultural capital is an individual who is **knowledgeable** about a wide range of **culture** and is comfortable discussing its value and merits. It is someone who through being given a vast array of **experience** and access to skill development, will be able to **independently** deploy knowledge in a range of given situations.

From this definition, it is important to extract key skills that are needed for an individual to achieve a 'good' cultural capital. This definition highlights the importance of knowledge, and how an individual must have access to a range of information about a wide range of culture to independently discuss it across contexts. In order to gain and retain such knowledge, an individual must also be motivated to learn in the first place. The links between motivation, the learning of knowledge and the value of independence are evident across the academic literature, with a higher motivation resulting in a higher engagement with learning (Singh, Granville, & Dika, 2002), and independence being key for deep learning to occur (Kyndt, Raes, Dochy, & Janssens, 2013). Therefore, the role of virtual experiences on independence, motivation and knowledge will be fundamental in measuring such a multi-faceted concept of cultural capital.

Its Impact

Bourdieu (1984) concluded that the greater cultural capital you have, the more powerful you are within society. Further educational research has identified the role of parental support and its impact on cultural capital. Specifically, middle and upper-class parents are more likely to invest in their child's education, both directly and indirectly (Montacute & Cullinane, 2018). They are both more likely to invest in extracurricular activities and school trips, whilst also having and providing the knowledge and networks to



support their children to make informed decisions in school applications, university and career options, to take actions to maximise acceptance chances and have the confidence and ability to support home learning. The Class Ceiling Project (Laurison, Miles, & Friedman, 2015) has revealed that professionals from affluent backgrounds earn, on average, £6,800 more than colleagues in the same role with working class backgrounds. In other words, even those disadvantaged pupils who are successful at beating their predicted trajectories and gain professional roles, remain at an economic disadvantage relative to their more affluent peers.

Furthermore, Hirsch, Kelt and Trefill (1988) defined cultural literacy as reading comprehension requiring both decoding and a wide background knowledge – an idea that has continued to be developed with schema theory. In other words, the more you know, the greater working memory available to process a text and new information (Carrell & Eisterhold, 1983). Those deprived of cultural capital have less of such knowledge to pass onto their offspring and hence, the issue is circular (Cultural Learning Alliance, 2019). Those more privileged children turn their objective and embodied cultural capital to institutionalised: acquiring credentials and education and thus, are more likely to obtain advantaged careers in our society. Therefore, it is key, as educators and transformative school leaders we are teaching children to have the knowledge and experiences that enable them to classify as having a high cultural capital and can function as well-informed individuals when they leave school (Riches, 2020).

Cultural capital in virtual learning

The use of virtual learning to support education has been limited, both developing in line with 21st Century technologies and with the evolving demands of the British curriculum. Virtual learning environments (VLES) have been the most frequently used virtual platforms, defined as learner-centred platforms facilitating the offering of active learning opportunities, including specific tutor

guidance and group work by the tutor and learners (Stiles, 2000). It is predominantly used across Western cultures as a platform for school management (administrative tasks, such as the register or grading).

Virtual experiences have been scarcely examined in the education literature previously. Virtual worlds have been created for archaeological research (Sanders, 2014) and visual story telling (Danilicheva et al., 2009). Virtual tours have been used to develop spatial skills (Kurtuluş, 2013) and in teaching physical geography (Kingston et al., 2012). Raskind, Smedley and Higgins (2005) analyse the impact of virtual trips in schools specifically, recognising that accessing experiences virtually helps to build and shape a learning experience where a trip would not be possible, such as to the Amazon rainforest or inside an active volcano. Whilst educational trips are acknowledged as having a substantial impact on learning, connecting learning to real world experiences, that otherwise may not be encountered, is key and often lacking (Tuthill & Klemm, 2002). Stainfield et al. (2000) outline that, despite the advantages, many teachers fail to take their children on excursions for a range of reasons, including a lack of funds. Hence, schools with limited funds and high levels of deprivation encounter fewer school trips than others in more privileged situations. Therefore, virtual trips, tours and experiences could provide a substitute where real visits are not possible, whether it be due to lack of funding or locational restrictions.

Following national lockdowns of schools and tourist attractions, cultural experiences became virtually available: businesses worldwide made their landmarks, museums, zoos and aquariums available over the internet, to enable individuals worldwide to engage online whilst they were physically closed. This gave the opportunity for children to access worldwide experiences virtually, such as tours of the Louvre and a virtual walk of the Great Wall of China, and thus the opportunity for them to experience a wide range of new cultural experiences from their own homes. Should these virtual experiences be beneficial in a time where trips are not



physically possible, schools could overcome their barriers for physical trips by using virtual experiences to provide children with a substitute for the physical experiences and culture gained by their more privileged peers. However, the question is would these virtual experiences be sufficient to increase the cultural knowledge of disadvantaged pupils, and increase their motivation and independence in learning such knowledge?

As a result, this chapter explores the answers to the following two questions:

1. Can virtual experiences contribute to the motivation, independence, knowledge and cultural capital of 9 to 11-year-old pupils?
2. Should virtual experiences be used as a platform to reduce the disadvantage gap in cultural capital?

Methodology

Design

As the author of the research is the teacher and leader of the pupils, this research follows an action research design frame. With this comes an awareness of the bias that is imparted on the research from my involvement with the participants (Mertler, 2009) and thus, tentative conclusions will be drawn. Ethical clearance was sought and gained for this project, and adhered to throughout.

Participants

The participants were a convenience sample of those who engaged with the online learning, shown in Table 1. All children were between 9 and 11 years of age.

Table 1. Percentage demographics of participants who engaged with virtual learning

Demographic	Frequency (Percentage)
Male	25 (36.8%)
Female	43 (63.2%)
Pupil Premium	41 (60.3%)
Non-Pupil Premium	27 (39.7%)
Total	68 (100%)

Source: research by the author.

Data Collection

The original research (Gillard, 2020) conducted research collection over a four-week period, with different topics of virtual experiences each week. For this article, one of these weeks – virtual experiences of countries around the world – is commented on and analysed. Additionally, overall trends across the four-week period of data collection are discussed to allow discussion around engagement, motivation and independence over time.

Two methods of data collection were used to measure the responses for virtual learning, using a mixed-methods approach. To measure a quantitative account of ‘knowledge’, participants recorded the facts relating to ‘countries around the world’ before and after they had engaged with the virtual experiences. Following this, a questionnaire was given to the participants to measure enjoyment, independence and motivation for using the virtual experiences, and using them again in the future. It also asked participants whether they have visited another country before, as this would allow a comparison of physical and virtual experiences.

Methods

Pre-topic Knowledge

Initially, children were asked to complete a mind map where they recorded all the information they already know about different countries around the world. It was made clear this was a pre-knowledge task, and participants were instructed not to complete any research before completing it.

Virtual Experiences

Upon completion of the pre-knowledge mind map, a series of virtual experiences were shared for different countries, including virtual tours of the Louvre, the Great Wall of China, and the Egyptian pyramids. Participants were encouraged to explore a range of these links across a three-day period. Within the instructions, participants were reminded this was a three-day task, and they should spend an appropriate amount of time exploring. No prompts or questions were provided.

Post-topic Knowledge

Following this three-day emersion in experiences, children will be asked to record all the new information they have learnt on the post-knowledge mind map, giving them the freedom to present and record information how they wish. On completion of this mind map, participants will be asked to complete a questionnaire on their views of the virtual learning they had just completed.

Leadership

With regard to the leadership elements of implanting these virtual experiences for the pupils, weekly virtual meetings were held with my phase team to discuss the elements of Google classroom that

were successful or posing challenges for the teachers. Furthermore, despite not leading elements of online learning or experiences, these meetings also included support staff to involve them in the process and ensure they are fully aware of the experiences that our pupils are receiving whilst at home.

In addition to the above, following my own personal reflections and those shared by my team, I also reported weekly to the senior leadership to inform them of the progress and engagement, as well as any concerns with online learning.

Data Analysis

‘Knowledge’ mind map analysis

In order to compare the ‘knowledge gained’ through virtual experiences, the number of facts recorded by participants was compared at the pre-knowledge (before the virtual experience) and the post-knowledge (after the virtual experience) stage of the topic. Using SPSS (a computer programme which conducts statistical analysis), inferential statistics were conducted to assess whether the knowledge gained upholds against significant testing, where $p < .05$. A comparison of means was conducted against statistical significance in order to compare facts for disadvantaged (pupil premium) and non-disadvantaged (non-pupil premium) pupils.

Questionnaire analysis

Quantitative responses were compared through descriptive statistics to identify trends and patterns within the data. Qualitative responses were coded using a constant comparative method, using a coding frame derived from the participant’s responses, with descriptive statistics used to analyse the coded responses.

Leadership

A reflexive analysis was conducted on my experiences as a leader within the action-research project, and as a teacher and leader within the school, discussing alignment with leadership styles, successes, and challenges throughout.

Fieldwork and Findings

Knowledge Gained from countries around the world – Mind Map Analysis

Table 2. Mean number of facts recorded at each stage of countries round the world virtual learning

Demographic	Pre-Knowledge	Post-Knowledge	Total Knowledge
Total Participants	6.88	14.16	20.99
Pupil Premium	6.59	11.91	18.49
Non-Pupil Premium	7.33	17.59	24.78

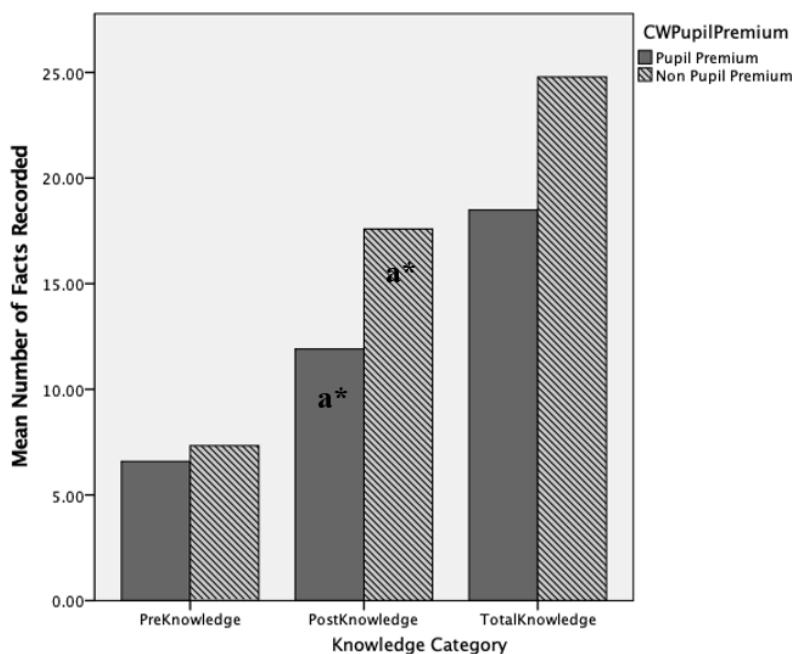
Source: research by the author.

The mean number of countries around the world facts recorded by participants in the three stages of knowledge throughout this phase can be seen in Table 2, comparing all pupils, pupil premium and non-pupil premium participants. A paired samples t-test was conducted, and revealed there was a significant difference in the pre- and post-knowledge countries around the world facts recorded, such that participants recorded significantly more facts following the virtual experience, paired $t(67) = -6.18, p < 0.5$. This was true for both pupil premium, paired $t(40) = -5.47, p < 0.5$, and non-pupil premium children, paired $t(26) = -4.12, p < 0.5$.

Pupil premium children have recorded fewer countries around the world facts than non-pupil premium children, however a one-way ANOVA revealed pupil premium children recorded significantly fewer facts than non-pupil premium children only at the post-knowledge stage $F(1,66) = 4.06, p <.05$, seen in Figure 1.

Figure 1. Graph showing mean number of 'Around the World' facts for pupil premium compared to non-pupil premium participants. N/B: a* indicates statistical significance

Bar Chart Showing the Knowledge of Each Part of 'Countries around the World' research for Pupil Premium compared to Non-Pupil Premium Children



Source: research by author.

Questionnaire analysis

Questionnaire data was analysed by topic, with comparisons conducted for both pupil premium status and gender. Each is revealed under the subheadings below.

Knowledge Gained

97.1% of participants reported they had learnt something new after exploring the virtual experience of countries around the world, as shown in Table 3.

Table 3. Frequency (percentage in parenthesis) of participants who reported they had learnt something new following virtual experiences of countries around the world

Demographic	Frequency (Percentage) Learnt Something New
Male	24 (96%)
Female	42 (97.7%)
Pupil Premium	40 (97.6%)
Non-Pupil Premium	26 (96.3%)
Total	66 (97.1%)

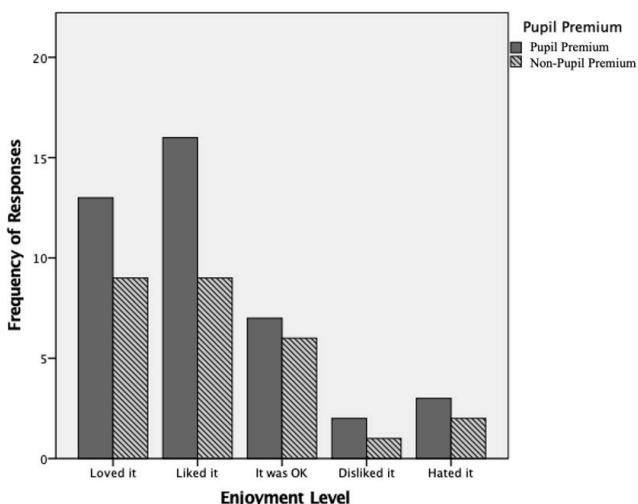
Source: research by author.

Previous Experiences

Figure 2 reveals the number of participants who had visited another country before, split into pupil premium and non-pupil premium participants, such that half (51.5%) of the sample had visited another country before: 41.5% of pupil premium have not travelled abroad, compared to 59.3% of non-pupil premium children.

Figure 2. Bar graph showing percentage of pupil premium and non-pupil premium participants who had visited another country before, at the time of the research questionnaire

Bar graph showing comparison of enjoyment levels for countries around the World virtual experience for pupil premium compared to non-pupil premium children



Source: research by author.

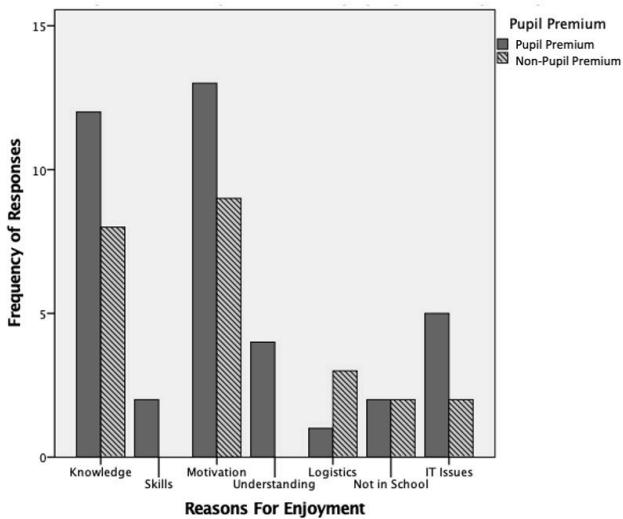
Enjoyment and motivation

Participants were given a scale of 1 to 5 to rank their enjoyment of the virtual learning experience; results can be seen in Figure 3a, with 69.2% of participants reporting they liked or loved the experience, a decline on reports from the first two experiences. Following this, participants were given the opportunity to explain why they felt this way, from which answers were coded. The most common reason for enjoying the virtual learning, like with the first week, was motivational reasons, such as it being interesting or fun

to use, seen in Figure 3b. Each is split to compare responses for pupil premium and non-pupil premium children.

Figure 3a. Graph showing enjoyment levels for countries around the world virtual experiences compared to non-virtual experiences, for pupil premium and non-pupil premium children

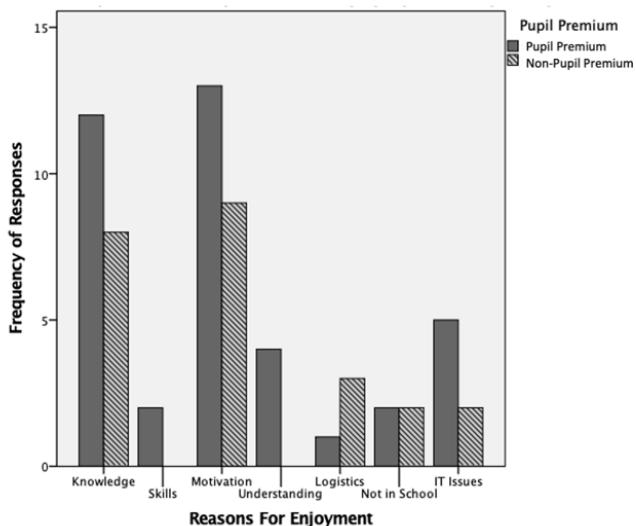
Bar graph showing reasons for enjoyment of virtual learning for pupil premium compared to non-pupil premium participants



Source: research by author.

Figure 3b. Graph showing reasons for enjoyment for virtual learning for pupil premium compared to non-pupil premium children

Bar graph showing reasons for enjoyment of virtual learning for pupil premium compared to non-pupil premium participants



Source: research by author.

Future Use

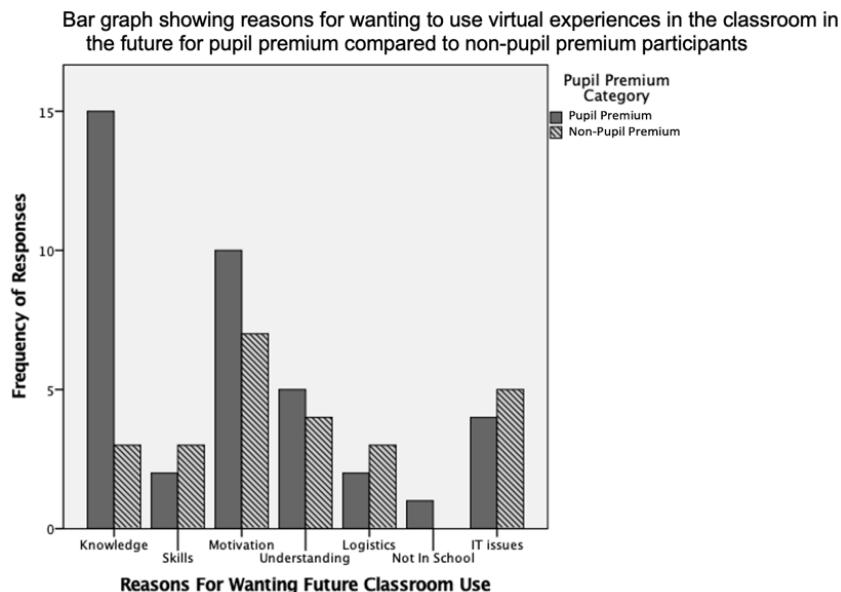
Finally, participants were asked whether they would like to use this virtual learning in the future, 88.9% of who stated they would, seen in Table 4. Reasons for this preference can be seen in Figure 4, with the most highly ranked reason being to increase knowledge and for motivational reasons, as with the previous topics reasoning.

Table 4. Frequency (percentage in parenthesis) of participants who would like to use the virtual experiences for learning in the future

Demographic	Frequency (Percentage) Use in the Classroom in the Future
Male	56 (82.4%)
Female	21 (84%)
Pupil Premium	35 (81.4%)
Non-Pupil Premium	32 (78%)
Total	24 (88.9%)

Source: research by author.

Figure 4. Graph showing reasons participants would like to use the virtual learning in the future



Source: research by author.

Note, the other three weeks of data collection follow very similar data patterns and trends, seen in Gillard (2020).

Data Trends Across Research

Trends across the four-week data collection have been analysed within this section, looking at overall enjoyment, motivation, independence, and knowledge.

Engagement Over Time

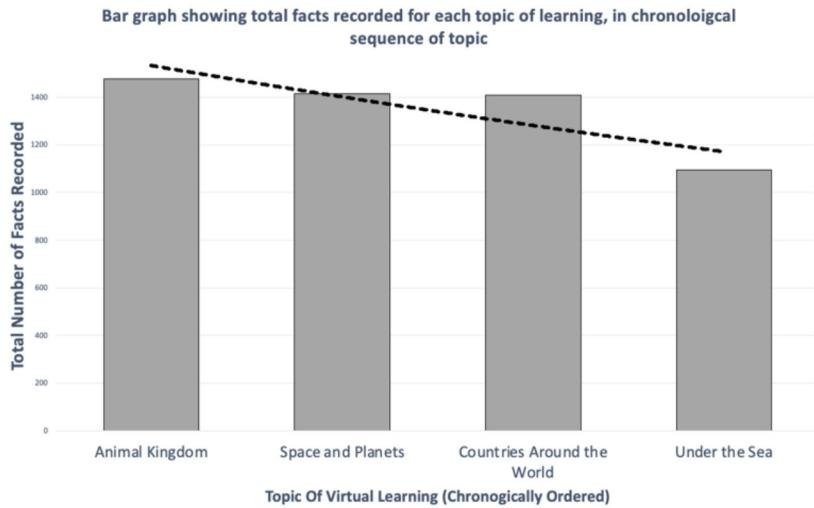
There was a slight decrease in participant numbers across the four weeks, seen in Table 5. In addition to this, Figure 5 illustrates the downward trend of total facts recorded throughout the research, such that the total number of facts recorded by participants decreased across the four weeks, a total difference of 379 facts.

Table 5. Total number of participants throughout each week of virtual experiences

Topic of Learning	Participant Number
Animal Kingdom	73
Space and Planets	72
Countries Around the World	68
Under the Sea	65

Source: research by author.

Figure 5. Bar graph showing total number of facts recorded across each week of the virtual learning

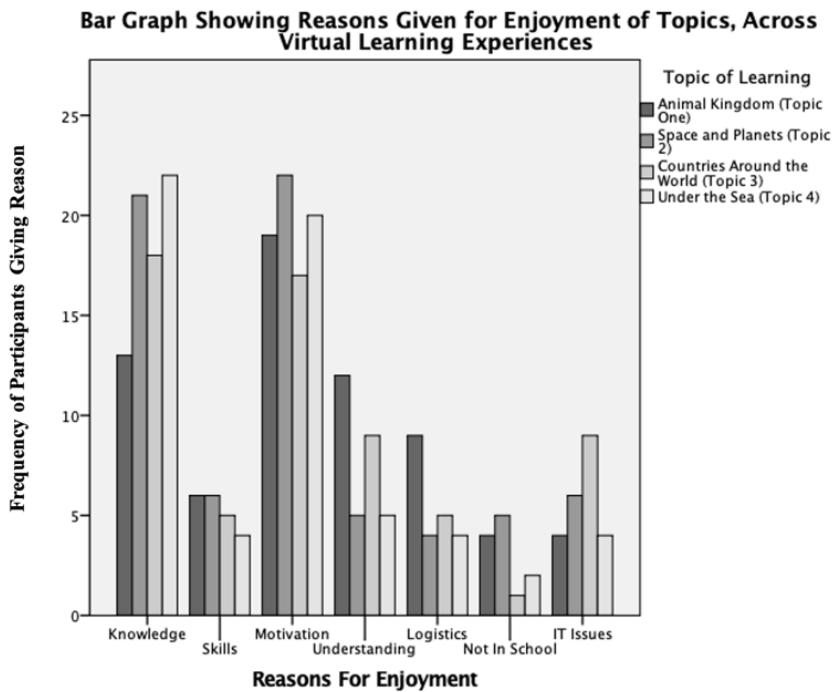


Source: research by author.

Enjoyment and Motivation Over Time

In each questionnaire, participants were given the opportunity to qualitatively express the reasons they had enjoyed the virtual experience. These responses were then coded into reason categories, which has been tracked across each topic as shown in Figure 6. Whilst there are fluctuations across topics for most categorised reasons, motivational reasons have remained high across all topics. Additionally, there is a clear upward trend of the number of instances knowledge was given as a reason for enjoying the virtual learning, which included references to learning, facts and information.

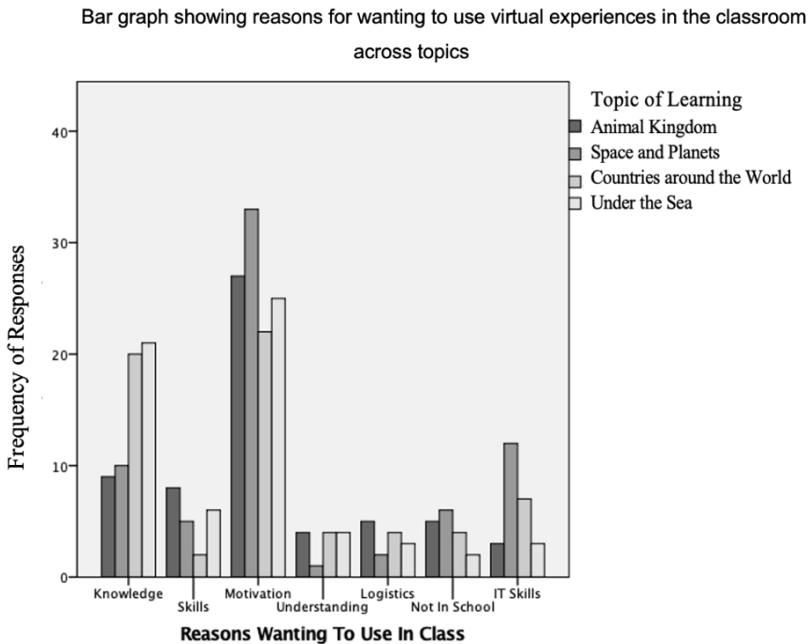
Figure 6. Bar graph showing categorised reasons of enjoyment for virtual learning across the four week, for each topic



Source: research by author.

In a similar trend, the reasons for participants wanting to use these virtual experiences in the classroom is shown in Figure 7, with motivational incentives remaining high, and knowledge-based reasons increasing across the four topics.

Figure 7. Bar graph showing categorised reasons of participants wanting to use virtual experiences in class across the four weeks, for each topic

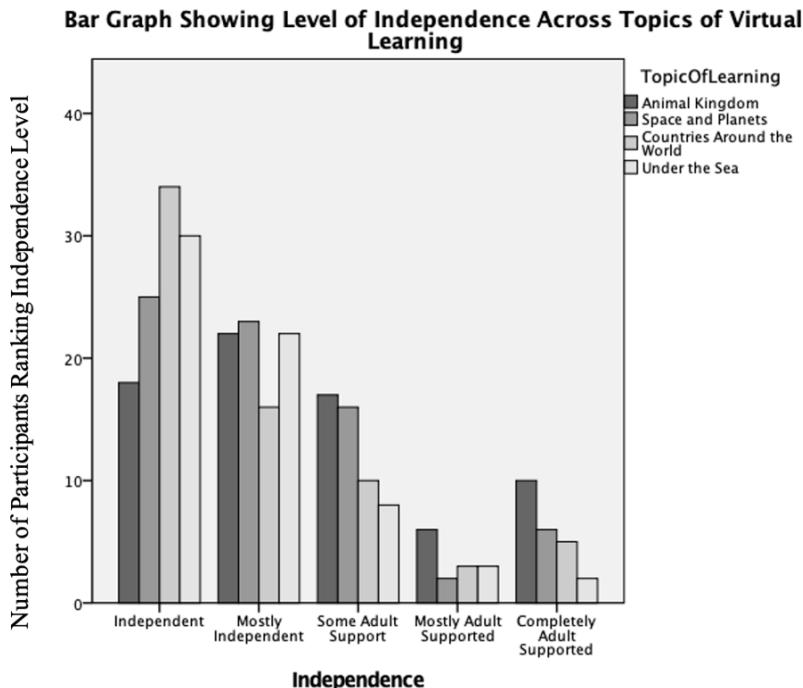


Source: research by author.

Independence

Within the questionnaires, participants rated, on a scale of 1 to 5, how much adult support they had throughout the virtual learning, where one was completely independent and 5 was completely adult-supported. This is plotted by topic and therefore across time in Figure 8. As illustrated, the number of participants rating themselves as independent is on an upward trend across each week of virtual learning, whilst the number of participants reporting adult support is following a downward trend across time, within each topic.

Figure 8. Graph showing participant's self-rated independence levels across time, for each topic



Source: research by author

Analysis and Discussion

Fieldwork discussion

Analysis of the facts recorded before and after the virtual experiences revealed that participants knew significantly more facts following the virtual experience than before. This would suggest that the virtual experiences have been successful in increasing participant knowledge for countries around the world, and thus suggests it has been successful in increasing this sample's objective cultural capital (Bourdieu, 1984). Supporting this, across each of

selves as having learnt something new, with 100% of participants reporting this in half of the topics. Furthermore, when asked why they were enjoying the virtual learning experience, the number of responses that stated gaining knowledge as a reason for enjoying it increased across each topic, suggesting that participants were also aware of their knowledge gain through the experiences, and saw this as an incentive to continue.

Schema theory (Bartlett, 1932) refers to knowledge as a web, such that the more prior knowledge you have about a topic, the greater vocabulary and understanding you have beforehand, the more successfully you will learn new information, building connections and links across the new and old material. Specifically in education, cognitive load theory (Sweller, 1988) suggests the greater your initial understanding and knowledge of a concept, your working memory is then more readily available to absorb new information that is presented. This then results in the Matthew Effect: those who know more information initially can gain more information throughout new learning (Stanovich, 2009; Duff, Tomblin, & Catts, 2015), as seen in cultural literacy – with a greater background knowledge, the more working memory available to process the new information (Carrell & Esiterhold, 1983). The Matthew Effect is represented here, such that pupil premium children consistently record fewer facts than non-pupil premium children both pre- and post-virtual experience. When virtual experiences are given to pupil premium pupils, it would appear the disadvantage gap remains, as non-pupil premium children gain more facts than pupil premium children.

Pupil premium children recorded significantly fewer facts after the virtual experience than non-pupil premium children, and as a result, had less overall knowledge regarding countries around the world than their more privileged peers. Here, it would seem evident that knowing less originally, with almost 60% of pupil premium children having not visited another country before, has resulted in limiting the overall knowledge that can be gained for the virtual learning experience of countries around the world.

Whilst the mind maps were a successful tool in allowing pupils to record their facts throughout the virtual experiences, there are obvious limitations. Firstly, I have referred to children's knowledge around each topic as quantified by the number of facts they have recorded at each stage. Whilst this has been beneficial given the circumstances of COVID-19 and home learning being the only tool as a way to quantify learnt knowledge, knowledge itself is a complex, multifaceted phenomenon that cannot be defined by the number of facts a child records. With so many external influences, such as adult support or the use of additional resources to help, alongside the recording of facts not necessarily demonstrating whether a child has a full understanding of the concepts they are recording, it is unlikely volume of facts recorded is a very valid tool for measuring knowledge. However, it has provided a quantitative indicator of what a child knows, and could suggest some tentative conclusions that virtual learning experiences may be a platform to increase a child's knowledge and experiences of a topic, and in turn, their cultural capital.

In addition to the analysis of the number of facts recorded, questionnaires provided an insight into participant enjoyment, motivation and independence when completing the work. Enjoyment levels were high for the countries around the world experiences, with 69.2% stating they loved or liked the virtual experiences. Furthermore, 88.9% of participants said they would like to use the virtual experiences again in the classroom in the future, with motivation being the most frequently stated reason for wanting to do so, in line with previous research (Kolias et al., 2005). Motivation has an evidenced relationship with learning, such that the more motivated you are, the more engaged you are (Singh, Granville, & Dika, 2013). Moreover, reasons for not enjoying the virtual experiences or for not wanting to use the experiences in the future were predominately due to technology issues or due to concerns that they were currently not in school. Should such virtual experiences be worked into an in-school curriculum, with teacher support for both technology issues and queries that arise,

comments such as “I like it when a teacher shows you how to do it,” and “it’s better when your teacher talks to you about it in the lesson” would no longer be a concern. As outlined in previous research (Keller, 2006; 2009; Babić, 2012), the success of VLEs is dependent on access to computers and the internet, as well as internet speed and technical support at home, disadvantaging those already disadvantaged even further through the digital divide (Cooper & Stewart, 2017), thus it is unsurprising technical issues have been raised.

Kolias et al. (2005) reported that VLEs give pupils greater learning responsibility, and thus promote the independence of learners. This is replicated in this research, such that learner self-ranking of their independence increased across the four topics. This again is promising for the promotion of cultural capital in this sample of learners, with cultural capital defined as being able to independently apply the cultural knowledge across concepts and topics. Thus, the increase in independence across time and decrease in adult support is promising. However, in line with independence increasing, engagement with the virtual experiences decreased over time, such that participant numbers declined each week, and the overall number of facts recorded in total for each topic decreased across topics. It is well recognised in education that motivation and engagement for topics, tasks and concepts can decrease over time, with teachers working hard to tailor learning to children’s interests and to keep their engagement and interest in their learning (Blumenfeld, Kempler, & Krajcik, 2006). Across these four weeks however, each task was repetitive, with the exception of the virtual learning links which varied in line with each topic. Thus, it is not surprising that engagement for the learning dipped across the project. It should not go unnoticed however, that the increase of independence over time resulted in a decrease in adult support over time. It could therefore be the case that engagement decreased with the learning, and the number of facts recorded decreased as participants were left to be independent with the learning, and thus, an adult was not checking their work or encouraging

participants to do more. The Montacute and Cullinane (2008) research outlines that parental support at home has a substantial impact on a child's cultural capital, with Babić (2012) recognising that virtual learning is unsuccessful without access to technical support at home. Thus, without high levels of parental engagement consistently to help their children with technological support, it is unlikely the virtual experiences will have their greatest impact.

Reflexive Analysis: Leadership

It is argued that reflexivity is central to action research, as it requires the conscious awareness that the researcher has been involved with every stage of the research and has a relationship with the participants (Cohen, Manion, & Morrison, 2011). It has been clear to me whilst being a leader throughout a period of time where disadvantaged pupils were found to be, yet again, behind their more affluent peers due to the digital divide, that I clearly resonate most with the transformational leadership style (Shields, 2010). I found myself facing a huge challenge of the inequality for disadvantaged pupils, heightened in national school closures and their lack of access to technology outlined in the digital divide, and schools were at risk of letting down their most vulnerable pupils in a time of their greatest needs (Cooper & Stewart, 2017). This project, as outlined by Sheilds (2010), became a task of challenging the inappropriate privilege that occurred within the global pandemic, whilst viewing it as an opportunity to see how technology can be utilised moving forwards in order to support disadvantaged pupils in closing the disadvantage gap. Giving children the opportunity to experience topics and not assuming they have had the experience would appear to benefit children in this sample. Thus, as suggested by Raskind, Smedley & Higgins (2005), virtual school trips to places impossible to visit, like an active volcano or the amazon rainforest, is beneficial, but within this sample of significant deprivation and low levels of previous experiences, localised cultural capital should not be assumed and virtual learning

experiences should be embedded wherever possible. The success of over 60% of pupils engaging with these virtual learning experiences with such high motivation and independence, and thus likely increased cultural capital, resulted in conversations within this school context to weave virtual experiences throughout the school curriculum, in addition to the physical experiences of school trips, moving forwards. Thus, on reflection of this action research project, the frustration and challenge experienced in a transformative leadership style has resulted in a school-wide change of experiences for all pupils, aiding those disadvantaged the most.

Conclusion

This action research project set out to answer the following two research questions:

1. Can virtual experiences contribute to the motivation, independence, knowledge and cultural capital of 9 to 11-year-old pupils?

It would appear that, for this sample of pupils in a primary school on the East coast, virtual experiences have contributed to the gain of knowledge (defined as the number of facts learnt), the independence and motivation of pupils, and therefore increased the cultural capital of participants, following the definition defined in this chapter.

2. Should virtual experiences be used as a platform to reduce the disadvantage gap in cultural capital?

Whilst there has been a likely gain in knowledge in the number of facts recorded following virtual learning experiences for all pupils, the disadvantage gap very much remains. The pupil premium children recorded significantly fewer facts than non-pupil premium children, at every stage of the learning. Thus, virtual experiences alone are not enough to remove the gap, however, it would certainly appear they have done no harm, as a gain in knowledge following the experience is only beneficial.

The conclusions outlined to each question above are incredibly tentative, with them applying only to the context and participants outlined within this study. The concepts studied within this project are complex and cannot be measured simply in ways that this research has attempted to, with the number of facts nor through uncontrolled self-responses to questionnaires, and thus, generalisability and validity of the concepts discussed is limited beyond the context of this study. What this research has done however, is highlight that virtual experiences could be beneficial in line with and beyond previous research, and they should be considered regularly within primary teacher's planning, not just when a school trip is not possible (Raskind, Smedley, & Higgins, 2005).

Further research should continue to explore the value of virtual experiences beyond a school closures context too, where support and engagement can be measured and controlled within the classroom rather than at home. VLEs have previously been researched most predominantly in secondary schools, however the closures saw the need for pupils of all ages to access online learning and such opportunities would allow for schools to be prepared for any situations in the future. It has highlighted to schools the value of teaching a computing curriculum, ensuring that children are fluid in the use of technology across contexts. Moreover, virtual experiences' impact on cultural capital should be explored further, perhaps with a wider definition and measurement of cultural capital beyond the quantity of facts recorded, as it is clear from the multi-faceted definitions that this is an oversimplified measurement.

With regard to leadership, a reflexive approach has made it clear that transformative leadership is the one I personally align to. Working in schools with high levels of disadvantage, I find myself frustrated and personally motivated to challenge the inequality posed to pupil premium pupils within our education system. Given the localised success of the project, with virtual experiences being embedded across the school curriculum, it would appear that this leadership approach has been beneficial within this context, as the



inequality of the pupils has been the motivation behind each action. It is only by feeling a sense of injustice towards those limited by their social contexts, that we as educators will be successful in working towards a shared experience for all pupils, over a range of platforms – including virtual – and thus, in challenging the disadvantage gap so evident within England's education system.

References

- Babić, S. (2012).** Factors that influence academic teacher's acceptance of e-learning technology in blended learning environment. In A. Guelfi, E. Pontes, S. Kofuji (Eds.), *E-Learning-Organizational Infrastructure and Tools for Specific Areas* (pp. 3–18). IntechOpen. DOI: 10.5772/28682.
- Bartlett, F. C. (1932).** *Remembering*. Cambridge, England: Cambridge University Press.
- Bennett, T., Savage, M., Silva, E., Warde, A., Gayo-Cal, M., & Wright, D. (2009).** *Culture, Class, Distinction*, Abingdon: Routledge.
- Blumenfeld, P. C., Kempler, T. M., & Krajcik, J. S. (2006).** Motivation and cognitive engagement in learning environments. In R. K. Sawyer (Ed.), *The Cambridge Handbook of Learning Sciences* (pp. 475–589). Cambridge University Press.
- Bogler, R. (2001).** The influence of leadership style on teacher job satisfaction. *Educational Administration Quarterly*, 37(5), 662–683.
- Bourdieu, P. (1984).** *Distinction*. Abingdon: Routledge.
- Carrell, P. L., & Eisterhold, J. C. (1983).** Schema theory and ESL reading pedagogy. *TESOL quarterly*, 17(4), 553–573.
- Cohen, L., Manion, L., & Morrison, K. (2011).** *Research methods in education*. Abingdon: Routledge.
- Cooper, K., & Stewart, K. (2017).** Does money affect children's outcomes? *London School of Economics and Political Science*, 21(3), 8–70.
- Cultural Learning Alliance (2019).** What is cultural capital? *Cultural Learning Alliance*. Retrieved from <https://culturallearningalliance.org.uk/what-is-cultural-capital>. Access: 13.02.2020.

Danilicheva, P., Klimenko, S., Baturin, Y., & Serebrov, A. (2009). Education in virtual worlds: Virtual storytelling. In *2009 International Conference on Cyber-World*, (pp. 333–338). IEEE.

Duff, D., Tomblin, J. B., & Catts, H. (2015). The influence of reading on vocabulary growth: A case for a Matthew effect. *Journal of Speech, Language, and Hearing Research*, 58(3), 853–864.

Gillard, O. (2020). *Do virtual experiences build children's cultural capital, and can they be utilised as a platform to reduce the disadvantage gap?* (unpublished masters thesis). Canterbury: Canterbury Christ Church University.

Gov (2020). Pupil premium. Gov.uk. Retrieved from <https://www.gov.uk/government/publications/pupil-premium/pupil-premium>. Access: 01.03.2020

Hammersley-Fletcher, L., & Strain, M. (2011). Power, agency and middle leadership in English primary schools. *British Educational Research Journal*, 37(5), 871–884.

Hirsch Jr, H. D., Kett, J. F., & Trefil, J. (1988). *The dictionary of cultural literacy*. Houghton Mifflin: Boston.

<https://www.gov.uk/government/organisations/ofsted/about>. Access: 15.03.2020.

Keller, C. (2006). Technology acceptance in Academic Organisations: Implementation of Virtual Learning Environments. In *Proceeding of the 14th European Conference on Information Systems*. Gothenburg: Sweden.

Keller, C. (2009). User Acceptance of Virtual Learning Environments: A case Study from Three Northern European Universities. *Communications of the Association for Information Systems*, 25(1). Retrieved from [http://aisel.aisnet.org/cais/vol25/iss1/3825\(38\)](http://aisel.aisnet.org/cais/vol25/iss1/3825(38)). Access: 03.03.2020.

Kingston, D. G., Eastwood, W. J., Jones, P. I., Johnson, R., Marshall, S., & Hannah, D. M. (2012). Experiences of using mobile technologies and virtual field tours in Physical Geography: implications for hydrology education. *Hydrology and Earth System Sciences*, 16(5), 1281–1286.

- Kolias, V., Mamalougos, N., Vamvakoussi, X., Lakkala, M., & Vosniadou, S. (2005).** Teachers' attitudes to and beliefs about web-based Collaborative Learning Environments in the context of an international implementation. *Computers & Education*, 45(3), 295–315.
- Kurtuluş, A. (2013).** The effects of web-based interactive virtual tours on the development of prospective mathematics teachers' spatial skills. *Computers & Education*, 63, 141–150.
- Kyndt, E., Raes, E., Dochy, F., & Janssens, E. (2013).** Approaches to learning at work: Investigating work motivation, perceived workload, and choice independence. *Journal of Career Development*, 40(4), 271–291.
- Laurison, D., Miles, A., & Friedman, S. (2015).** Introducing the class ceiling. *The Sociological Review*, 63(2), 259–289.
- Mertler, C. A. (2009).** *Action research: Teachers as researchers in the classroom*. Chicago: Sage.
- Montacute, R., & Cullinane, C. (2018).** Parent power 2018: how parents use financial and cultural resources to boost their children's chances of success. *Sutton Trust*. Retrieved from <https://www.suttontrust.com/wp-content/uploads/2019/12/Parent-Power-2018.pdf>. Access: 15.03.2020.
- Odumeru, J. A., & Ogbonna, I. G. (2013).** Transformational vs. transactional leadership theories: Evidence in literature. *International Review of Management and Business Research*, 2(2), 355.
- Ofsted (2019).** *School inspection handbook*. Retrieved from <https://www.gov.uk/government/publications/school-inspection-handbook-eif/school-inspection-handbook>. Access: 15.03.2020.
- Raskind, M., Smedley, T. M., & Higgins, K. (2005).** Virtual technology: Bringing the world into the special education classroom. *Intervention in School and Clinic*, 41(2), 114–119.

Riches, A. (2020). What does Ofsted mean by 'cultural capital'? *Tes.com*. Retrieved from <https://www.tes.com/news/what-does-ofsted-mean-cultural-capital>. Access: 17.03.2020.

Robbins, S. P., & Coulter, M. (2007). *Management* (9th ed.). London: Prentice-Hall.

Sanders, D. H., (2014). Virtual heritage: researching and visualizing the past in 3D. *Journal of Eastern Mediterranean Archaeology & Heritage Studies*, 2(1), 30–47.

Shields, C. M. (2009). Transformative Leadership: A Call for Difficult Dialogue and Courageous Action in Racialised Contexts. *International Studies in Educational Administration (Commonwealth Council for Educational Administration & Management (CCEAM))*, 37(3), 53–69.

Shields, C. M. (2010). Transformative leadership: Working for equity in diverse contexts. *Educational administration quarterly*, 46(4), 558–589.

Singh, K., Granville, M., & Dika, S. (2002). Mathematics and science achievement: Effects of motivation, interest, and academic engagement. *The journal of educational research*, 95(6), 323–332.

Stainfield, J., Fisher, P., Ford, B., & Solem, M. (2000). International virtual trips: a new direction? *Journal of Geography in Higher Education*, 24(2), 255–262.

Stanovich, K. E. (2009). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Journal of Education*, 189(1–2), 23–55.

Stiles, M.K. (2000). Effective learning and the virtual learning environment. In *EUNIS 2000: Towards Virtual Universities: Proceedings of the European University Information System 2000 Conference* (pp. 171–180), INFOSYSTEM 2000. Poznan: Instytut Informatyki Politechniki Poznanskiej.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive science*, 12(2), 257–285.

Teach First (2020). The issue. *Teach First*. Retrieved from <https://www.teach-first.org.uk/inequality-education>. Access: 03.03.2020.

Tuthill, G., & Klemm, E. B. (2002). Virtual field trips: Alternatives to actual field trips. *International Journal of Instructional Media*, 29(4), 453–468.