

Gender Gap in Academic Self-Concept

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Using a combination of creative music workshops and gaming. A Widening Participation project.

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We worked with year 5 and year 6 children (aged 8-10yrs) from two local primary schools (N=94) and two local care homes in Crewe, in the UK. We conducted quasi experimental mixed mode research on an intergenerational Widening Participation project that used creative music sessions. We used the Attitudes to Higher Education Questionnaire (AHEQ) developed by Pam Maras and the 'Map of Me' graffiti chart developed by Ornette D Clennon to measure and track the children's changed attitudes towards Higher Education as a result of the creative music interventions. We found that despite the apparent creative freedom given to our cohorts in terms of negotiating their own learning outcomes in the creative music sessions, the boys (n=43) still lagged far behind their female counterparts (n=51) when it came to their attitudes towards Higher Education and academic self-image. However, the post-intervention data did point towards the boys' preference for gaming as a form of social and collaborative learning, which led us to write a brief Appreciative Inquiry into the intervention we could have run had we known this from the start.

Keywords: widening participation ; academic self-concept ; gender gap ; creative learning ; educational gaming

1. Background

Our pilot study commissioned by Cheshire East Council set out to use the Attitudes towards Higher Education Questionnaire (AHEQ) and the 'Map of Me' graffiti chart, to measure the change in young people's attitudes towards Higher Education. We worked with Student Ambassadors from Manchester Metropolitan University's Collaborative Office as co-researchers to lead creative workshops and collect data from children attending two local primary schools. The research team collected data that measured the effect sizes of having taken part in a music making workshop series that used technological and non-technological performative methods. This research-project was supported by the Collaborative Office's Widening Participation (WP) team, as a means of generating more detailed data on its WP activities. We were particularly interested in tracking the children's views of their 'Likelihood to attend university' and their academic self-image. Our quasi-experimental design used both a non-random and randomised sample of young people attending two primary schools in the Crewe area between the ages of 8 and 10 years. They were divided into two test groups who participated in the music workshops and two control groups who did not. Both groups were interviewed using AHEQ and 'Map of Me' questionnaires before and after the intervention over roughly the same time period.

2. Methodology

The design was quasi-experimental using a combination of qualitative and quantitative methods. We administered the 'Attitudes to HE Questionnaire' (AHEQ) (Maras, 2007) to all the young people participating in the study before and after the intervention. The questionnaire was administered verbally on an individual basis and questions were rephrased in an age-appropriate manner when necessary. AHEQ is a self-reporting measure that comprises 62 statements about attitudes towards higher education and academic self-concept. Participants respond to each statement on a five point 'likert' scale indicating whether they strongly agree, agree, neither agree nor disagree, disagree or strongly disagree. Maras developed the questionnaire through extensive piloting because she wanted to explore the following factors (pp. 73 – 74):

- Own attitudes and perceptions of peer and family attitudes toward Higher Education;
- Academic self-concept in relation to the importance of school work;
- Self-competence in school work;
- The degree of effort expended in school-work; and,
- Identification with others: school, peer and family.

We also used the 'Map of Me' graffiti chart (Clennon, 2013) before and after the intervention. Interviewees were encouraged to give each quadrant of a four-box grid a name of an issue that was of most importance to them in the interview. The interviewees were then encouraged to write or draw sub-issues under the title of their quadrants which explained the significance of the issue in further detail. The interviewees were also asked if they could find links between the issues they had identified by drawing arrows that described the relationship (p. 113):

The end result was a map of the interviewees' current issues of importance in the session. The chart generates ranks according to the number of times an issue is mentioned pre- and post-intervention. The more times an issue has been mentioned post-intervention, the more important it is deemed to the participant, the higher it is ranked. The converse is also true.

3. Data Analysis

We used a mixed mode of data analysis. The quantitative data was entered into the Statistical Package for Social Scientists (SPSS) and validated by an independent observer who screened checked each entry. We carried out the analysis by using Pearson's *r*-correlation (*r*) and Spearman's rank correlation (ρ). Our main measurement of pre- and post-intervention correlation and significance for AHEQ was Pearson's *r*-correlation with a measurement for *p*. In order to judge whether 'Map of Me' comparisons between pre- and post-intervention control and test rankings were reliable, we found it useful to test the distribution of the data and its statistical significance with Spearman's rank.

4. Participants

The programme of activities took place at two primary schools in Crewe. There were N=94 participants comprising N=51 girls and N=43 boys. There were two year 6 (ages 9-10) test groups, one from each school n=23 and n=28 and two corresponding control groups; year 6, n=23 and year 5 (ages 8-9), n=20 from both schools. In one school, the teacher chose which pupils to participate in the test and control groups (years 6 and 5, respectively), whilst in the other school the teacher used the register to randomly assign the year 6 pupils to the control and test groups.

Participants were given consent forms for their carers/parents to sign before they participated in the study. The schools mailed out the consent forms to parents, which detailed the nature of the research with the intention of registering consent with non-return of forms. The schools said that this was a more efficient way of asking for parents' permission, where parents could choose to opt out of the research by returning their forms rather than returning their forms to opt in. We achieved a 100 per cent opt in, which in a school context is not unusual.

5. Intervention

The intervention took the form of music workshops that took place over 5 weekly fifty minute sessions. The theme of the workshops was World War 1 (WW1) and contributed Cheshire East Council's area-wide WW1 commemorative activities. The aim of the workshops was to create new song compositions using, as starting points, WW1 poetry and the stories of elderly people from local care homes who had childhood memories of the war (See appendix). In addition to the intergenerational work that took place in the care home settings and schools, we showcased the finished work on campus at the university. We combined the performance with a tour of the campus and a short informal presentation of student life at university. The tour and presentation formed the explicit part of our WP intervention, as it was deemed important that the participants were given the opportunity to link their creative work with Higher Education. The whole intervention was an implicit piece of Widening Participation work because the researchers who led the workshops were music students from the university and were introduced to the year 5 and 6 groups as such.

The intervention largely used the model 'Arts for participation and citizenship' (Hughes, 2005), where our participants adopted a positive community role by using peer educational processes. In our intervention, the researchers developed pedagogical partnerships with the teachers in order to foster a creative and critical approach to workshop music making that embedded the development of social skills, both within the year groups and with the elderly co-participants. The workshops were characterised by Process directed education (Bolhuis & Kluvers, 2000) where the year 6 participants were asked to negotiate their own ground rules for the group that included choosing which instruments they wanted to play based on their own self-assessment of ability. The workshops were also guided by the use of Situated Learning (Lave & Wenger, 1991), where learning was distributed through the groups by assigning certain roles for certain workshop processes, such as the role of conductor, so that the participant could shape the group song by directing their peers. The researchers/workshop leaders also ensured that communication and rapport was maintained between the year 6 cohorts and the elderly participants throughout the workshops.

Findings

AHEQ: Whole Sample - Test group

Table 1. N=94

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r-diff	-0.36	-0.08	-0.05	-0.20	-0.13	-0.15	-0.14	0.08	0.11	0.03	-0.08
	p<0.05										
Post	-0.32	0.03	0.05	-0.24	-0.23	-0.08	-0.24	-0.01	0.01	-0.09	-0.17
	p<0.05			p<0.05	p<0.05		p<0.05				
Pre	0.04	0.11	0.10	-0.04	-0.10	0.07	-0.10	-0.09	-0.10	-0.12	-0.09

Table 1 shows significant whole sample decreases in attitudes towards 'Peers', 'Academic effort', 'Academic competence' and 'General self-worth' with $r=-0.32$ $p<0.05$, $r=-0.24$ $p<0.05$, $r=-0.23$ $p<0.05$ and $r=-0.24$ $p<0.05$ respectively.

However, if the data is broken down by gender, it can be seen that the girls in table 2, showed a significant improvement in their 'Views on likelihood of attending University (F1)' with an r diff=0.26 $p<0.05$ from a pre-intervention score of $r=-0.27$. Table 2 also shows that the girls registered relatively large non-significant improvements in 'Family views on attending University (F3)' and a very small non-significant improvement in their views about their 'Academic competence'. In fact, their views about 'School' and 'Academic effort' show a slight non-significant decrease around the same magnitude of their resultant positive views of 'Academic competence'.

AHEQ: Whole Sample Girls - Test group

Table 2. N=51

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r-diff	-0.20	-0.13	-0.04	-0.03	0.03	-0.17	-0.08	0.26	-0.03	0.12	-0.22
Post	0.09	0.10	0.00	-0.17	-0.10	-0.09	-0.20	-0.01	-0.18	-0.06	0.00
Pre	0.29	0.23	-0.04	-0.14	-0.13	0.08	-0.12	-0.27	-0.15	-0.18	0.22
								p<0.05			

AHEQ: Whole Sample Boys - Test group

Table 3. N=43

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r-diff	-0.21	-0.16	-0.17	-0.23	-0.20	-0.29	-0.31	-0.15	-0.13	-0.04	-0.27
Post	-0.45 p<0.05	-0.16	-0.02	-0.11	-0.28	-0.24	-0.40 p<0.05	-0.09	-0.05	-0.05	-0.21
Pre	-0.24	0.00	0.15	0.12	-0.08	0.05	-0.09	0.06	0.08	-0.01	0.06

Table 3 shows that the boys registered decreases in attitudes across all of the categories. The least levels of decrease were around 'Family views on attending University' (F3)' at $r=-0.05$ but this is a relatively small decrease and not significant at $p>0.05$. However their views about their 'Peers' and their views about their 'General self-worth' seemed to score significant decreases in attitudes with $r=-0.45$ $p<0.05$ and $r=-0.40$ $p<0.05$ respectively.

Breakdown by School

AHEQ: School 1 – Test group

Table 4. n=43

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r-diff	-0.40	-0.03	-0.06	-0.20	-0.15	-0.02	-0.14	0.11	0.20	0.07	0.02
Post	-0.40 p<0.05	0.00	0.11	-0.22	-0.14	-0.07	-0.18	0.02	0.11	-0.06	-0.12
Pre	0.00	0.03	0.17	-0.02	-0.29	-0.05	-0.04	-0.09	-0.09	-0.13	-0.14

Table 4 shows that there was a significant fall of $r=-0.40$ $p<0.05$ in their attitudes towards their 'Peers' after the project. The strongest overall improvement was registered in their perception of the 'Likelihood of friends attending University (F2)', followed by a registered improvement in their 'Views on likelihood of attending University (F1)'.

In order to better understand this result we need to disaggregate the table in gender groups.

AHEQ: Girls – Test group

Table 5. n= 29

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
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	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r diff	-0.28	-0.22	-0.27	0.30	0.24	-0.03	-0.10	0.42 p<0.05	0.15	0.30	0.53 p<0.05
Post	-0.13	-0.17	-0.05	-0.02	0.17	-0.05	-0.02	0.15	-0.12	0.01	0.27
Pre	0.15	0.05	0.22	-0.32	-0.07	-0.02	0.08	-0.27	-0.27	-0.29	-0.26

Map of Me - Girls

Table 6 (n=29 issues)

Rank	Issue	Post-intervention Difference %
-	<i>Family</i>	4.9
-	<i>House</i>	2.8
-	<i>Myself</i>	1.2
1	Popular Culture	1.1
-	<i>Food</i>	1
2	Lifeguard (helping people)	0.9

Notes: Pre-intervention (correlation with data from the control group): Spearman's rho=0.50, p<0.05. Post-intervention (correlation with data from the control group): Spearman's rho=0.64, p<0.05. Issues in italics are discounted as the (+/-) direction of their rankings are shared with the control group.

Table 5 shows an increase in attitudes across all categories specifically relating to the likelihood of attending university. Their 'Views on likelihood of attending University (F1)' and their 'Academic self-concept' (GCSEs and A levels; F4) in particular scored significant increases of r diff=0.42 p<0.05 and r diff=0.53 p<0.05 from pre-intervention scores of r=-.27 and r=-0.26 respectively. These improved university related scores would seem to be underlined by large non-significant increases in their attitudes towards 'Academic effort' and 'Academic competence' at r diff=0.30 and r diff=0.24 respectively. However, in table 6, it is unclear why 'Popular Culture' gained in post intervention importance and it is equally unclear how this issue is related to their AHEQ university scores. However, 'Helping people' could have received a small increase in importance as a result of working the elderly participants.

AHEQ: Boys – Test group

Table 7. n= 16

About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
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	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r diff	-0.30	-0.16	-0.20	-0.32	-0.45	-0.27	-0.63 p<0.05	-0.29	-0.50	-0.03	-0.30
Post	-0.50	-0.16	-0.09	0.00	-0.26	-0.39	-0.55 p<0.05	-0.23	-0.14	0.03	-0.23
Pre	-0.20	0.00	0.11	0.32	0.19	-0.12	0.08	0.06	0.36	0.06	0.07

Map of Me - Boys

Table 8 (n=26 issues)

Rank	Issue	Post-intervention Difference %
1	Games (Xbox, PS2 etc)	7.2
-	<i>Pets</i>	<i>4.1</i>
2	Friends	3.1
3	School	0
3	Family	0
5	Myself	-1
-	<i>Outdoor play/sport</i>	<i>-3.1</i>
-	<i>Indoor sport/play</i>	<i>-6.25</i>
-	<i>Computers</i>	<i>-9.4</i>

Notes: Pre-intervention (correlation with data from the control group): Spearman's $\rho=0.78$, $p<0.05$. Post-intervention (correlation with data from the control group): Spearman's $\rho=0.83$, $p<0.05$. Issues in italics are discounted as the (+/-) direction of their rankings are shared with the control group

Tables 7 shows that the boys had a much sharper decrease in their attitudes towards their 'Peers' and their feeling of 'General Self Worth (GSW)' than did their female counterparts. The boys' GSW score was statistically significant at $r=-0.55$ $p<0.05$. Table 8 interestingly shows a decrease in importance of 'Myself' which could be viewed as a reflection of their lower GSW score but equally intriguing is their post intervention increase in their 'Friends', which could be highlighting their very large non-significant decrease in attitudes towards their 'Peers' at $r=-0.50$. There would seem to be a social issue affecting the boys' scores as they also registered a large decrease in attitude towards their perceptions of the 'Likelihood of friends attending University (F2)' with a very large but non-significant $r \text{ diff}=-0.50$ with a pre-intervention score of a moderate but non-significant $r=0.36$ score.

AHEQ: School 2 – Test group

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r diff	-0.32 p<0.05	-0.12	-0.05	-0.21	-0.11	-0.30	-0.03	0.04	0.02	-0.02	-0.18
Post	-0.24	0.05	-0.01	-0.26	-0.32 p<0.05	-0.01	-0.30 p<0.05	-0.04	-0.08	-0.11	-0.22
Pre	0.08	0.17	0.04	-0.05	-0.21	0.29	-0.27	-0.08	-0.10	-0.09	-0.04

Table 9 shows significant decreases in attitudes towards 'Academic competence' and 'General Self Worth (GSW)' at $r=-0.32$ $p<0.05$ and $r=-0.30$ $p<0.05$ respectively, with a significant r diff= -0.32 $p<0.05$ for the 'Peers' score.

In order to better understand this result we need to disaggregate the table in gender groups.

AHEQ: Girls – Test group

Table 10. n= 22

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r diff	-0.13	-0.03	0.20	-0.36	-0.18	-0.30	-0.06	0.09	-0.20	-0.06	-0.09
Post	0.30	0.36	0.06	-0.32	-0.37	-0.13	-0.39	-0.17	-0.25	-0.14	-0.26
Pre	0.43	0.39	-0.14	0.04	-0.19	0.17	-0.33	-0.26	-0.05	-0.08	-0.17

Table 10 shows the largest non-significant positive post intervention increase in attitudes towards 'School'. Even though 'Peers' achieved the largest post intervention scores of $r=0.30$ $p>0.05$, this represents r diff= -0.13 which is a modest non-significant decrease in attitude in this area. Table 11 shows that "Friends" was the highest ranking post intervention issue despite a decrease of r diff= -0.13 . It is not immediately clear what the importance of 'Life' is in table 11 and whether it points to 'Peers', or 'School' with their large but non-significant r differentials. However, in view of the war stories shared by the elderly co-participants and the war poetry that was studied, it is possible that 'Life' could be a reflection of their empathic thoughts around the survival of the young soldiers they learned about.

Map of Me - Girls

Table 11 (n=24 issues)

Rank	Issue	Post-intervention Difference %
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-	<i>Pets</i>	6.7
1	Friends	5.3
2	Life (food, survival)	1.8
3	Games (Xbox, PS2 etc)	1.5
-	<i>Sport</i>	1
-	<i>House</i>	1
-	<i>Popular culture</i>	0.2
-	<i>School</i>	-2.6

Notes: Pre-intervention (correlation with data from the control group): Spearman's $\rho=0.9$, $p<0.05$. Post-intervention (correlation with data from the control group): Spearman's $\rho=0.62$, $p<0.05$. Issues in italics are discounted as the (+/-) direction of their rankings are shared with the control group

Table 12 shows that the boys had a significant decrease in their attitudes towards their 'Peers' with $r=-0.41$ $p<0.05$. Table 13 shows that 'Friends' gained in post intervention importance. It is not clear whether this increase of importance of "Friends" is positive or negative but taken in conjunction with the low 'Peers' score, table 13 could be seen as supporting the $r=-0.41$ $p<0.05$. In table 12, the boys did record an improvement in their perception of 'Likelihood of friends attending University (F2)' with an r diff=0.23. Their post intervention score of $r=0.03$ shows a minimal overall correlation with the control group, their r differential score does suggest a moderately positive movement towards a positive correlation. Table 13 shows that "Helping people" gained post intervention importance.

AHEQ: Boys – Test group

Table 12. n= 29

	About Me	About Me	About Me	About Me	About Me	About Me	About Me	AHEQ	AHEQ	AHEQ	AHEQ
	Peers	Family	School	Acad Effort	Acad Comp	Acad Impor	GSW	F1	F2	F3	F4
r diff	-0.33	-0.16	-0.14	-0.13	-0.04	-0.31	0.00	-0.01	0.23	-0.04	-0.23
Post	-0.41 $p<0.05$	-0.15	-0.04	-0.21	-0.30	-0.09	-0.24	0.04	0.03	-0.13	-0.19
Pre	-0.08	0.01	0.10	-0.08	-0.26	0.22	-0.24	0.05	-0.20	-0.09	0.04

Map of Me - Boys

Table 13 (n=25 sessions)

Rank	Issue	Post-intervention Difference %
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1	Outdoor play/sport	6.2
2	Games (Xbox, PS2 etc)	5.1
3	Friends	4.1
-	<i>Phone</i>	2.1
4	Navy (helping people)	2.1
-	<i>Computer</i>	2.06
-	<i>Pets</i>	1

Notes: Pre-intervention (correlation with data from the control group): Spearman's $\rho=0.89$, $p<0.05$. Post-intervention (correlation with data from the control group): Spearman's $\rho=0.8$, $p<0.05$. Issues in italics are discounted as the (+/-) direction of their rankings are shared with the control group

7. Discussion

Our findings show that the boys' attitudes towards academic attainment across all of the AHEQ measures were consistently lower than the girls. This finding points to a long standing phenomenon in education which peaked in national interest in 1998 when in a speech at the 11th International Conference for School Effectiveness and Improvement, the former School Standards Minister, Stephen Byers, argued that boys' 'laddish' anti-school attitudes were impeding their progress at school (The Guardian, 1998). However, Smith (2003) points towards the need for greater nuance in the debate about male underachievement, as she argues that if girls are achieving better results than boys this is despite the system not because of it. In our study, we did not intentionally collect data for ethnicity (although we did notice $n=4$ BAME children in our $N=94$ sample) nor did we collect demographic data relating to socio economic status, so the complex intersectional discourse that could be read into our data set cannot be fully pursued in this paper. In view of this, we do not intend to greatly discuss the possible cultural and social reasons for these apparent results, as this debate can be numerously read elsewhere, instead we would like to examine what strategies we could put in place in future Widening Participation interventions that could perhaps better address the gender imbalance in academic self-image and engagement.

7.1. Boys and Lower Academic Motivation

Our overall findings in table 3 showed that the boys experienced an overall decrease in all of their AHEQ scores. The boys scored significantly low scores for their attitudes towards their 'Peers' and their 'General Self-worth'. It could be suggested that these low post-intervention scores impacted on their 'Academic Self-concept' (F4) scores, and were emphasised by their correspondingly low post-intervention attitudes towards 'School', 'Academic Effort', 'Academic Competence' and 'Academic Importance'. By contrast, for the girls in table 2, even though their post-intervention 'Peers' and 'General Self-worth' scores were also lower, these decreases were not as pronounced as the boys' and did not seem to inhibit a significant improvement in their 'Views on likelihood of attending University (F1)'. These findings seem consistent with the data produced from (Maras, 2007) study where she also recorded significantly lower results for her male cohort of participants around 'Academic self-concept' and academic motivation generally. In our study, the significantly lower 'Peers' and 'General Self-worth' scores as well as the higher ranked Map of Me post-intervention issues of 'Friends' for the boys seem to point to areas around social identity and academic value (Bornholt, Maras, & Robinson, 2009). Frosh, et al. (2002), Mac an Ghail (1994) and Martino (1999) suggest that in constructing a masculine social identity, boys appearing to be interested in education and academic attainment can sometimes be perceived by their peers as going against their constructed social norms.

In our study, it is difficult to tell if this is exactly the case why the boys' scores in these areas around social identity and self-esteem are significantly lower than the girls but our intervention did rely heavily on Process-directed education (Bolhuis & Kluvers, 2000) and Situated learning (Lave & Wenger, 1991), where the development of social and

communication skills to negotiate learning outcomes were of paramount importance. Maras (2007) reports that in her study, boys tended to respond better to direct mentoring activities that included small group/one to one work around study activities (such as homework clubs) than did the girls.

7.2. Boys, Gaming and Situated Learning

However, we did notice in both schools, that the boys seemed to consistently rank 'Games' (Xbox, PS2 etc) higher than their female counterparts (although it is noted that one of the cohort of girls also highly ranked gaming at number 3 but this was still lower than both male cohorts) as leisure activities, when identifying issues of greater post-intervention importance in their Maps of Me. Ivory (2006) points to a male gender bias towards the preference for video game playing. Ivory also reports that the video content of many games still suffers from female under-representation in their gaming characters and where they are portrayed, they are highly sexualised. It is tempting to consider whether this preference for gaming as found by the boys' Map of Me rankings is linked in any way to their social construction of their masculine identities (Beasley & Standley, 2002). However, this does point to the fact that there is also a social and facilitated component to the boys' learning. Although the creative workshop format of our intervention's group negotiated learning outcomes seemed to favour the girls, it is worth considering whether our creative workshop format could be transposed to (or integrated with) a gaming environment where the boys might be better engaged. Lindsay & Muijs (2006, p. 2) report that the boys in their study responded particularly well to ICT and "competing for awards had a particularly marked effect on boys' motivation".

7.3. Integrating gaming and collaborative learning in future Widening Participation interventions

The use of gaming in educational settings is being viewed as increasingly important for equipping (all) children with the skills necessary to access an employment market that is much more technology driven, interconnected, competitive and "flat" (Reimers, 2008; Burke, 2010). Such is the perceived need for developed economies to keep a pace with technological advances in the global knowledge economy that Gurría (2010, para 10) warns that "high income countries cannot take for granted that they will forever keep their comparative advantage in 'human capital'". Levy & Murnane (2004) characterise the next generation of jobs by their increased use of technology, extensive problem solving and complex communication. In the UK, this realisation of the need to embrace technology in education has been witnessed by the rise of Minecraft. Minecraft is a "computer sandbox game...where players actually programme its components by using computer code to build the virtual environments and its avatars" (Clennon, 2014, p. 75). In fact, towards the end of our intervention, we had noticed that pupils from one of our participating schools were already informally (recreationally) using this software with great enthusiasm and that their teachers were eager to learn more about it.

In their review of educational gaming McClarty, et al., (2012, p. 6) identify five main areas where gaming can be used to enhance classroom pedagogy[i].

7.4. An Appreciative Inquiry: Commemorating World War 1 (WW1) using Creative music workshops and Gaming - A Widening Participation Initiative

We will now conduct a very brief Appreciative Inquiry (van der Haar & Hosking, 2004; 'dream, design, deliver, destiny') into our intervention, where we will locate three of McClarty, et al., (2012)'s elements into a re-imagined intergenerational Widening Participation intervention that we could have delivered in our schools. We will look at 'Games are built on sound learning principles', 'Games provide more engagement for the learner' and 'Games teach 21st century skills'.

7.4.1 Project Introduction

Our intervention used music workshops to bring together year 6 children from local primary schools and elderly people from local care homes in a project that commemorated WW1. Stories from the elderly participants were collected alongside the study of WW1 poetry and these material were used as starting points for writing and performing original songs.

7.4.2 Project Aim (Dream)

- To explore and commemorate WW1 through music making and songwriting

7.4.3 Objectives (Design)

- Review WW1 poetry and personal stories from elderly participants
- Write music inspired by stories and poetry
- Rehearse songs
- Perform songs on the university campus

7.4.4 Project description (Deliver)

Using the poems and stories as starting points, we devised creative writing sessions that sought to construct song lyrics from the material gathered. We could have also asked a separate team to construct Minecraft simulation of some of the war conditions discovered in the poetry and stories. This would have taken the creative interpretations of the poetry and stories and turned them into a collaborative research project where the Minecraft team would have needed to have found out how to programme (construct) the trenches and wartime avatars (soldiers). This could have been a specific piece of programming that required the team to re-create a particularly well-known WW1 site of conflict. Ke (2009) and Gee (2004) write about the unique strengths of being able to learn in a simulated environment that affords the opportunity “to think, understand, prepare, and execute actions” (McClarty, et al., 2012, p. 8). This task could have been set in the context of a history research project and could also have incorporated creative writing skills because Barab, et al., (2005) observe that learners are more engaged when a narrative story is embedded within games. Dickey (2005) writes that narrative is a useful tool for providing a coherent framework for the completion of tasks. Games can be designed with clear pedagogic goals (Dickey, 2005) and whether these goals have been achieved or not can be communicated as immediate feedback that can be used as an extremely useful formative assessment tool for students (Black & William, 1998) thus demonstrating games are (can be) “built on sound learning principles” (McClarty, et al., 2012, p. 8). The transfer of creative material from the creative writing/interview workshops into starting points for the programmed simulation of a WW1 site and story would have demonstrated an excellent collaborative, knowledge transfer process between the working groups.

Writing music with material generated from poems and personal stories.

Another collaborative mix between the creative workshops and Minecraft could have been achieved in the writing of music. In our intervention, the researchers had encouraged the participants to choose their instruments based on their self-assessed efficacy. This Process directed technique (Bolhuis & Kluvers, 2000) shares elements of what the OECD (2006, para 1) call the “personalisation” of education. Games can be scaffolded or personalised to meet the knowledge needs of the player by using levels that vary in difficulty and that can only be played in their order of difficulty (McClarty, et al., 2012). In our intervention, this was illustrated by the researchers encouraging the children to play simple rhythms and harmonies on their instruments to build up relatively complex soundscapes and musical fragments. In our re-imagined intervention, a parallel process could have been used in Minecraft, where through the use of Minecraft Noteblock Studio (Minecraft, 2011), simple blocks of sounds (“instruments” chosen by the user) can be placed on a grid to construct simple musical lines which can be layered in complexity as per the user’s ability. The group composition could have fed into the Minecraft composition and vice versa to create a live/electronic hybrid music track. Johnson, et al., (2011) would posit that games, as well as creative group work, can foster collaboration, problem-solving and procedural thinking and would regard these qualities as important “21st century skills” (McClarty, et al., 2012, p. 16).

Performance of Songs

The end of our intervention was marked with a celebratory event hosted by Manchester Metropolitan University where the children were able to perform the material they had devised to an invited audience. The multimedia aspect of their performance where the Minecraft simulation of a WW1 scene with story and Noteblock Studio music could have been seamlessly integrated into their live performances, would have created an immersive learning/performance experience that would have been “fast, active and exploratory, with information supplied in multiple forms in parallel” (Kirriemuir & McFarlane, 2004, p. 3). McClarty, et al., (2012, p. 13) would describe this immersive experience as a capacity of games being able to “provide more engagement for the learner”. However, we would propose that the combination of live and electronic work (both audio and visual) would actually have been even more stimulating than a games presentation alone.

8. Conclusion (Destiny - legacy implications)

We acknowledge that an intervention of this kind would not always be possible in all school settings. This type of mixed media intervention would require a level of teacher/workshop leader partnership that would have budgetary implication in terms of the time needed to make sure it worked effectively. However, we do hope that our brief Appreciate Inquiry has demonstrated how what Lindsay & Muijs, (2006, p. 4) would call a “mix of universal and targeted approaches tailored to different contexts” could be used to stimulate engagement from both boys and girls in social learning contexts.

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Appendix

Lyrics from the creative workshops

School 1

Verse:

Why did I live?

Why did they die?

My friends that meant so much to me.

I can't breathe,

And I just want to scream,

Until I hear a friendly voice next to me

Chorus:

"Be calm, be calm, this war is not your fault.

There's evil out there, I know it's not fair.

Be strong, be strong, and soon you will be marching home.

Out of the trenches and back to the people who care.

School 2

Verse:

Down in the trenches, watching my friends fall,

And I'm so cold, I'm so cold.

They told me that this war would be a ball

And we'd live long, then we'd be old.

We might die,

We won't cry.

We're the bravest boys that we've ever seen

And we're here for our country.

Chorus:

Gas! Gas!

We might die (Devastation)

But don't be afraid,

We're saving our country

For a brighter day.

[i] Games are built on sound learning principles

Games provide personalized learning opportunities

Games provide more engagement for the learner

Games teach 21st century skills

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