

### **Understanding the Big Picture: The VFX HE Online Mentoring Programme 2016-2017**

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#### **Abstract**

VFX HE Online Mentoring Programme 2017 is funded by the British Film Institute (BFI) and UK Creative Skillset. The project is led by the University of Greenwich and supported by three BAFTA and Oscar award-winning VFX facilities: The Moving Picture Company (MPC), Framestore Visual Effects and (Oriental) DreamWorks. The idea behind this year's programme was to provide an in-depth understanding of VFX productions – especially internal VFX pipelines (the internal collaboration between departments of world-leading VFX facilities), professional advice and VFX recruitment – including of the required hard and soft skills. We believe that VFX HE Online Mentoring Programme 2017 has provided 1) a systematic chain of understanding and learning VFX and 2) a direct professional voice from the VFX industry to UK VFX learners in Higher Education.

**Keywords: VFX; Online Mentoring; Higher Education**

#### **Project rationale**

Visual effects (VFX) has been defined 'as any imagery created, altered or enhanced for a film, or other moving media, that cannot be accomplished during live action shooting...' (Fink, 2015). Visual effects, including 2D and 3D have been incorporated into many film productions, especially many modern feature films which rely heavily on them. VFX Higher Education (HE) is a very challenging subject, which requires academics to have excellent practical experience in the industry, in-depth knowledge of the history of film production and scientific understanding of the technical components of visual effects. As one of the UK's fastest-growing sectors, film made £4.3b in gross value added (GVA) in 2015 and '48 out of the 200 top-grossing films globally were made in the UK' (The British Film Institute, BFI, 2017). In order to keep the UK film industry vibrant, so that it will 'remain at the cutting-edge of the technological developments that are redefining our sector' (BFI, 2017), we need to provide the next generation of film-makers with proper training. The BFI (2017) has stated that there is evidence of widespread skills' shortages and that the educational sector is not equipping new entrants to the industry with the skills that they need. In addition, Livingstone and Hope (2011) say that the UK's visual effects industry, although 'enjoying very rapid growth, is having to source talent from overseas because of skills shortages at home'. The UK Home Office (2018), in its shortage occupation list (Table 1.), presents twenty-one VFX occupations, in five different sections, which offer foreign specialists work in the UK by providing exceptional visa rules. Such significant skills shortages should be alerting educators and the UK VFX industry as a whole to the fundamental need for appropriate VFX training programmes in this country – to boost student employability and offer the industry a supply of suitable candidates. Immigration Rules Appendix K: shortage occupation list:

**Table 1 - United Kingdom Shortage Occupation List**

<b>Standard Occupational Classification (SOC) code and description</b>	<b>Job titles included on the United Kingdom Shortage Occupation List and further criteria</b>
2135 IT business analysts, architects and systems designers	<p>Only the following jobs in this occupation code:</p> <p>systems engineer in visual effects and 2D/3D computer animation for the film, television or video games sectors</p> <p>data scientist employed by a qualifying company, where the job requires a person with a minimum of five years' relevant experience and demonstrable experience of having led a team.</p>
2136 Programmers and software development professionals	<p>Only the following jobs in this occupation code:</p> <p>Senior developer employed by a qualifying company, where the job requires a person with a minimum of five years' relevant experience and demonstrable experience of having led a team.</p> <p>The following jobs in visual effects and 2D/3D computer animation for the film, television or video games sectors:</p> <p>software developer shader writer games designer</p> <p>The following jobs in the electronics system industry: driver developer embedded communications engineer</p>
3411 Artist	<p>Only the following jobs in this occupation code:</p> <p>Animator in visual effects and 2D/3D computer animation for the film, television or video games sectors</p>
3416 Arts officers, producers and directors	<p>Only the following jobs in this occupation code:</p> <p>The following jobs in visual effects and 2D/3D computer animation for the film, television or video games sectors:</p> <p>2D supervisor 3D supervisor computer graphics supervisor producer production manager technical director visual effects supervisor</p>
3421 Graphic designers	<p>Only the following jobs in this occupation code:</p> <p>The following jobs in visual effects and 2D/3D computer animation for the film, television or video games sectors:</p> <p>compositing artist matte painter modeller rigger stereo artist texture artist</p>

With the background described above, the BFI and Creative Skillset started to seek dedicated professionals and HE institutions to lead the VFX HE Online Mentoring Programme. As the funding project co-investigator in 2015-2016 and principal investigator in 2016-2017, I have successfully collaborated with Escape Studios in 2015 and, from 2016, have led the programme, which used a new teaching concept; the project was also

supported by three world-leading visual effects facilities. The following analyses of the project are based on the VFX HE Online Mentoring Programme 2016-2017.

### **VFX HE Online Mentoring Programme 2016-2017**

The following section presents the case study of an online learning platform<sup>1</sup> which is currently open for eighty-eight students and their course leaders from six UK HE institutions.

#### **How the project operated**

As already indicated, the project was directly supported by three world-leading VFX facilities: The Moving Picture Company (MPC) London Headquarters; Framestore Visual Effects London Headquarters; (Oriental) DreamWorks (Shanghai). By providing detailed information about such inner workings of VFX Facilities as VFX pipelines, standards, VFX roles and collaborations between departments, the programme covered a series of exciting professional information. Through this learning opportunity, participating students gained in-depth knowledge and understanding, both of how VFX facilities work and also of the hard and soft skills required by potential employers.

The 2016-2017 programme included two major parts:

##### Part one: online self-learning

All participating students and their course leaders could access up to twenty-two exclusive pre-recorded self-learning videos – created by three BAFTA and Oscar award-winning VFX companies – which covered a series of key stages of visual effects production pipelines inside two of these large, world-leading VFX facilities – The Moving Picture Company (MPC) and Framestore. The MPC videos focused on VFX in high-end feature films; those by Framestore cover VFX in both high-end feature films and TV commercials. The MPC videos focused on VFX in high-end feature films; those by Framestore cover VFX in both high-end feature films and TV commercials. The third company, (Oriental) DreamWorks, produced a series of videos to demonstrate some critical tasks for 3D animated feature films. Such contrasts in focus gave learners an excellent opportunity to compare how such significant VFX companies approach their productions and difference of VFX production pipelines between companies.

##### Part two: online live Q&A sessions

This part consisted of online mentoring Q&A sessions. At the end of each learning week, we invited MPC and Framestore heads of department and senior professionals to answer questions based on the week's content. Through Adobe Connect, students could directly ask these artistic specialists specific questions and then instantly receive answers from them. The online Q&A sessions provided an excellent opportunity for all students to engage interactively with the programme and, since all the sessions were recorded and made available on the programme website, those not able to attend the live sessions could nevertheless still watch the recordings at their own convenience.

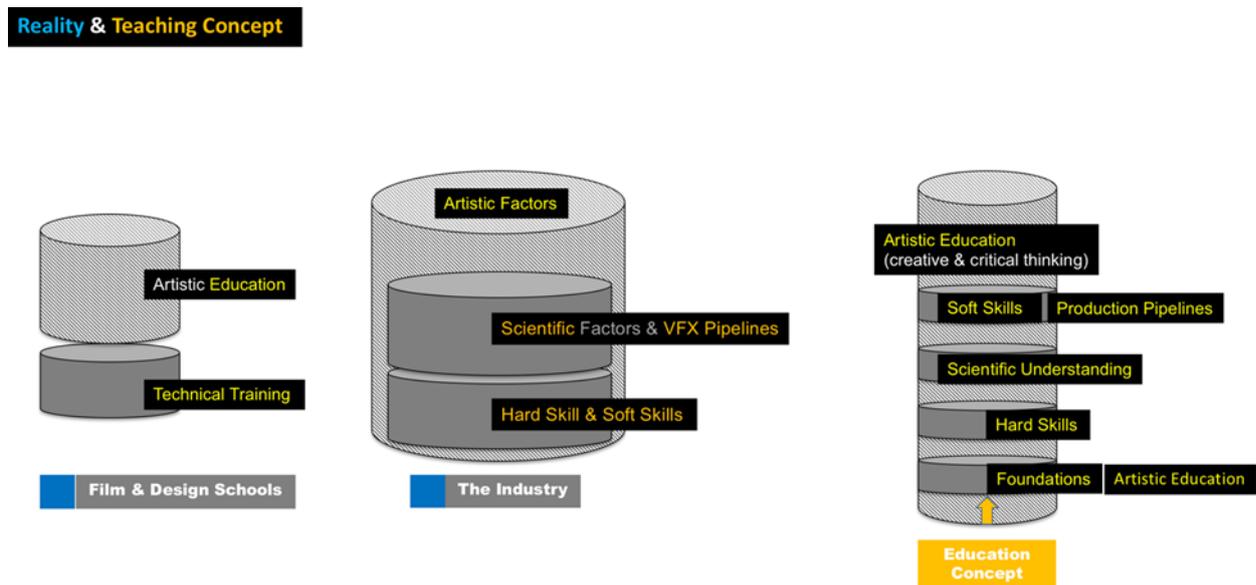
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<sup>1</sup> <http://vfxhementor.co.uk/>

**Research and teaching concept**

Today's modern film and game industry have become more complicated than ever before, visual stories presented to audiences through media platforms are the results of the collective effort of teamwork. Production pipelines play a critical role in balancing production quality and efficiency. For students, 'understanding how production pipelines work increases their chances of employment. One of the most common failings of interviewees is lack of understanding of the production process' (Dunlop, 2014). VFX in higher education is traditionally divided into creative or artistic education, as well as software and technical training. However, VFX artistic professionals must have a solid understanding of two aspects of their work: production pipelines and scientific factors – especially in high-end feature film and TV commercial production – if they are to be able to efficiently deal with varying daily production demands of colleagues, teams and departments. Insufficient educational emphasis on the understanding of these two critical aspects of VFX production may trap a large number of students into focusing on new features of fast-updating software instead of on the goal of becoming a creative artist with a critical mind and, ultimately, a skilful VFX operator. With the phenomenon of this philosophy in higher education, as academics, we probably should ask ourselves what we really expect from our next generation.

The following diagram (left and middle in Figure 1.) shows a comparison of current teaching concept and the VFX industry production concept in reality. The third diagram (right in Figure 1.) indicates an ideal teaching concept in VFX higher education.



**Figure 1:** A comparison of reality and teaching concepts

The VFX HE Online Mentoring Programme 2016-2017 has covered eighteen key areas of VFX productions and included pre-recorded videos, interviews and online live Q&A sessions from thirty-two dedicated professionals in different departments at three world-leading VFX facilities. From the following feedback from our students who participated in the programme, we can clearly see how students think about our teaching approach in the programme 2016-2017.

VFX HE Online Mentoring Programme 2016-2017 students' feedback - [Link](#). This feedback has also been attached as Appendix 1.

### **Technology-enhanced learning**

The technology-enhanced learning in this project is reflected in every part of the programme, especially the live Q&A sessions in each learning week. We invited up to fifteen senior artists from different departments of MPC and Framestore to interact with participating students in online live Q&A sessions. This approach provided a direct communication opportunity between employers and potential new graduate jobseekers who could instantly receive professional advice and thus more confidently, and at an early stage, prepare the skills and knowledge needed for their future job applications.

### **Sustainable learning**

After completing the programme, participating students may, in order to reference and refresh their learning, continue to access the project website and all recorded videos, including recorded Q&A sessions, until August 2019. Furthermore, since all their names are listed on the official project website, they can offer VFX studios intent on graduate recruitment some very compelling training evidence in support of their applications.

Overall, the idea of, and approaches used in, the Creative Skillset VFX HE Online Mentoring Programme are fully adaptable and so it can be deployed in similar HE subjects across the globe.

### **Internal VFX course construction integration**

VFX HE Online Mentoring Programme 2017 learning contents have been seamlessly embedded into three internal VFX courses at the Department of Creative Professions and Digital Arts, University of Greenwich. All second-year students in Film Production and 3D Animation are given free accounts in order to access the programme and all its online learning content – for them an excellent background study platform.

Similarly, participating institutions can subscribe to all teaching materials and embed them into their VFX-related programmes as an additional background learning platform.

In addition, all participating academics (course leaders) from the UK HE institutions have been given free accounts to access the learning videos. We hope that this provides them with an opportunity to listen directly to the industry's advice and improve VFX-related courses in their institutions.

### Research findings and suggestions

#### Finding one: recruitment challenge

Although VFX HE Online Mentoring Programme 2016-2017 has received very positive student feedback, we indeed faced challenges to effective communication with potential participants during the programme recruitment period. Though our initial recruiting approach was to contact course leaders in VFX-related courses approved by Creative Skillset, this method didn't work as well as we expected: finding the right person to contact proved difficult; course leaders contacted did not respond efficiently to our emails – a significant problem as we had no other means of communicating directly with potential participating students from other HE institutions.

#### Suggestion

Our suggestion based on this finding is to establish a formal agreement between Creative Skillset and UK HE institutions. If relevant courses have been approved and ticked by Creative Skillset, HE institutions should take responsibility for facilitating participation in related Creative Skillset funding projects. We believe this suggested solution could prevent the embarrassment of not being able to find participating students from Creative Skillset-approved HE institutions. Additionally, HE institutions should, every academic year, provide Creative Skillset with the email addresses of both students and approved course leaders. This would make it easier for principal investigators (PI.s) of Creative Skillset funding projects to contact HE institutions and their students for purposes of recruitment.

#### Finding two and suggestion: engagement

Course leaders should be aware of their responsibility to encourage students to participate in Creative Skillset funding projects. Disengagement is a common problem in HE. McGrath states: 'learning is influenced by the student's whole experience at University' (McGrath *et al.* 2015, xi). Course leaders in their institutions are a key factor in influencing student learning and proper encouragement may have a positive influence on students' learning engagement.

### A proposal for VFX HE Online Mentoring Programme 2018-2019

On account of the positive feedback from participating students, HE institutions and the industry partners, we shall continue to develop the programme from 2018.

As a second part of the programme, the VFX HE Online Mentoring Programme 2018-2019 will be aiming at hands-on practice. Participating students will be assigned to and directly mentored by professional artists in different departments of world-leading VFX facilities to finish a series of VFX projects; this will provide students with an excellent opportunity for practical implementation of what they learnt from part one of the programme 2016-2017.

We shall continue to develop the programme in each academic year. As the project PI, I should be delighted to discover further funding opportunities for this project from Creative Skillset or other research funding organisations. We believe that the increase in participating membership by both UK and international HE institutions will benefit greater numbers of students passionate about VFX and eventually help the development of the UK's VFX

industry. Additionally, a university that leads this project will also quickly build up a reputation as a leading university in VFX HE.

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### Appendix 1.

#### **BFI & Creative Skillset Funding Project: VFX HE Online Mentoring Programme 2016-2017**

Project PI: Dr Jin Zhi

#### **Anonymous feedback from participating students:**

*'In my opinion, the programme has been absolutely amazing, it showed the pipeline in a simple way to understand and it allowed us to ask questions. I found many of the videos both inspiring and informative. I'm aiming to become a compositor so the programme was perfect for me as it had the MPC (tutorial like) compositing videos. Although I believe it would have been nice to have had videos like this for other departments too, so that we get an overview of what the tasks are like in every department. Many students still don't know what area to specialise in yet, so having tutorial like videos on every department would be a great help I think.'*

*'It was great to meet artists who actually work inside the biggest VFX known companies. It helped knowing how these artists got to that stage and what jobs/experiences they had before. It would be nice to get more workshops about animation.'*

*'I thought the VFX HE Mentorship was interesting and gave a great insight into the creative industry. It provided a good experience of what is expected in any given role and provided a wealthy knowledge from different companies. I would of liked to have seen perhaps for the mentor programme to touch a little more on 3D development as this was my main field. I found the online Q&A to be very helpful and was a great source for getting any question answer by people in the industry. I liked the fact that these guys could spend some time with you and give you the help or direction you needed. I valued their honesty and the expectations of working in these roles.'*

*'The program was interesting and informative, it allowed me to obtain some knowledge on what each department does, as well as give me some insight on what role I would like to take on after graduating. Thank you again for the Part A of the Mentoring program, look forward to Part B next year.'*

*'An excellent opportunity to have a closer look at the industry standards and pipeline. Recorded sessions very clear and easy to follow. I have learnt few new tricks for animation. Overall a great mentoring session including excellent live Q&A. I am very pleased I have participated in this project.'*

*'I found the content created by the participating companies to be very interesting and helpful to me build a better understanding of the processes involved in a VFX production. I am mainly interested in modelling/texturing and the creation of assets, so felt that perhaps this was one area of the course that wasn't really covered as in depth as the other disciplines on show. I thought the Q+A sessions were very valuable to get a better insight as to what is required with regard applying for internships and academy programs etc.'*

*I feel the course has definitely helped increase my understanding of the VFX pipeline for film production. I will look forward to attending part two next year.'*

*'It was good, I really liked getting to know more about my chosen industry and it helped me focused on what I want to do and how I should go about achieving it. Q and as were the best bits.'*

*'Extremely helpful and essential information for anyone entering the VFX path.'*

*'I enjoyed VFX HE Online Mentoring Programme because it showed me how the VFX industry works. I learn a lot about the importance of pipeline in industry which changed the way I think. I also enjoyed the video tutorials from the professional artists, some were quite detailed. I believe this knowledge will help me in future when I get to do real work for company. This was my first time using Adobe connect so I feel I get to know about it too. Thank you for giving me this opportunity to participate. I hope I can learn more from you in 2018.'*

*'Overall, I found the course very interesting and very insightful. I liked that it looked at many various aspects of the pipeline and has even opened my eyes into trying other skills and looking at other departments. My only downside was the lack of practical. I understand how important the theory is but it would have been nice to put some of the videos to work.'*

*'I learnt quite a lot from videos provided, I think they cleared up some of the worries I had regarding the industry. The only feedback I have for the course is that some of them are overtly long and it is a little hard to focus for that long. Maybe for next year it would be good to split those into separate parts. Thank you!'*

*'I thought the whole programme was an invaluable experience and this is definitely what most students are missing in their course curriculums*

*- expertise of people from the industry. Also, please keep recording live Q&A sessions, great way not to feel left out if unavailable to attend.*

*Don't think the programme could have been changed or moderated further for better experience; the content provided was in depth and clear, explained a lot of unclear areas of VFX. Though would have been nice to see a video about asset building (modelling). Thank you again for everyone's time in making this.'*

*'Very insightful video lectures and the Q&A have been quite helpful when exploring different options for getting in to the VFX industry. Being able to learn from the industry experts and their view on the industry has helped me broaden my understanding. I'd love to have had more sessions and probably more engagement with the experts, perhaps have their social media (e.g. twitter) or contact to be able to interact with them more after the Q&A.'*

*'I think the programme has been beneficial for having an idea of how things work in the VFX industry, and, furthermore, to receive a professional point of view to significant questions. Personally, I can't wait to see the 2018 programme. The thing to improve would have been*

*the duration of the course; personally, I think that it could have last a little longer, as it was fascinating. However, I understand that artists are very busy therefore I am grateful for these videos.'*

*'Concise information about the roles and structure of the two companies involved with VFX. Overall enlightening with very useful dialogue during the live sessions. Of particular interest was the information pertaining to the various background experiences of employees and their respective career journeys, also that of the continued development through in house training. The dedication and commitment of the interviewed participants to their roles were clearly apparent and I found their insights to be frank, open and demonstrated their professional mind set. In terms of what I have taken away from this Programme is a clearer understanding of the VFX industry, the roles within and the commitment required. Though my interests lie primarily in Concept Design and 2D animation, I should like to continue learning and developing my skills in general.'*

*'This programme was tremendously helpful in allowing me to gain a greater understanding of how the VFX Industry works and the various roles in the industry. I look forward to the next part of this VFX training programme in 2018.'*

At the time of this document was made, we continued receiving feedback from more student about the programme...