

# Decision Points

Brad Gyori and James Pope

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## DESIGNING STUDENT-CENTRED LEARNING FOR DIGITAL INTERACTIVE STORYTELLING

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### Introduction

This paper reports on two community-based projects undertaken by the authors and other members of the Faculty of Media and Communication at Bournemouth University in May 2018 and May 2019. Both projects were devised around the belief that creative writing using digital tools would be engaging and even inspiring for secondary school students who might not normally have access to digital tools or feel motivated to try their hand at creative writing. The practical aim was to design and produce digital interactive stories and then publish them online. These narratives would feature many types of media including written text, film, sound, photography, and drawings.

Here is a video about project 1 from 2018: [https://www.youtube.com/watch?v=E5rbuUC\\_BLc](https://www.youtube.com/watch?v=E5rbuUC_BLc)

The finished narratives can be experienced at <http://genarrator.org/groups/?group=2476>

Here is a video about project 2 from 2019: [https://www.youtube.com/watch?time\\_continue=2&v=KL25ZXGOvg](https://www.youtube.com/watch?time_continue=2&v=KL25ZXGOvg)

The finished narratives can be experienced at <http://genarrator.org/groups/?group=32098>

Refining our Digital Interactive Storytelling Project (hereafter DISP) through multiple iterations involved incorporating an Action Research methodology (Koshy 2005; McNiff 213). Each action/reflection cycle produced new observations as well as written and oral feedback that we were able to draw upon when modifying our plan of action.

At every stage, our work was informed by student centered theories of pedagogy. We considered how the learning design influenced students at the level of the individual (Gee 2003; Yelland and Masters 2005), and the team (Bandura 1971; Schüler 2007). We were also aware of other comparable projects in the field, which reveal similar advantages of using digital tools to work creatively with young people (see Botfield et al 2018; Heron and Steckley 2018; Sadik, A., 2008). We believe our project is unique in that it uses a custom-built software platform.

The two projects involved Year 10 students at the Bishop of Winchester Academy in Bournemouth, UK. It has been identified by Bournemouth University as a low-HE-participation institution. Therefore, we were especially keen to work with the students there.

UK Year 10 participants, ages 14-17, were tasked with creating interactive multi-media stories with the software program [Genarrator](#) (Pope, 2009a; 2013a, b).

These two iterations of our digital storytelling initiative each took place over a two week period: writing, story mapping, and preproduction in week one; production, postproduction and a final presentation for peers in week two. They both featured 20 student-participants. Project supervisors included a secondary school instructor, five practice-oriented lecturers from Bournemouth University (BU) and student-mentors also from BU. The Year 10 students were divided into four teams, each comprising five students. A BU undergraduate was assigned to mentor each team. The BU faculty members facilitated the production of different types of media assets.

Survey feedback and written endorsements illustrate that students and teachers found these storytelling collaborations powerful educational experiences. In addition to helping participants develop “hard” skills such as story-plotting and scripting, video editing, sound recording, web development and interactive story mapping, they also enhanced “soft” skills related to communication and collaboration. Adolescents who, previously, had little interest in producing media or pursuing a degree in higher education, reported that they found the process empowering and aspirational.

In 2018, we worked with an “upper set” group, and in 2019, we worked with a “lower set” group. Although their academic standing was nominally different, both groups were highly engaged with the DISP and both excelled in terms of mastering new skills and inventing original interactive narratives. One of our BU undergraduate mentors had this to say about working with the lower set students:

I think it’s trying to bring them out of their shell a little bit. And these guys, I think that it’s been hard to get them there, but when they’re there, then they’ve worked fantastically. I don’t know if they believed they could do something quite like that and now they’re really really engaged, really switched on (Gyori & Pope 2019 n.p.).

The overarching aim for both of the projects was to offer access to digital-interactive storytelling to a diverse community, as a means of creative expression. Relative to this aim, our research questions were:

1. How can we ensure that effective experiential learning occurs when students are creating interactive stories?
2. How do students learn from each other and from mentors when creating interactive stories?

The following outlines the process employed to devise and evaluate the practical work the students created, and the empirical and scholarly research underpinning this work and its production. We also provide evidence of the participants’ reactions to their involvement in the two recent iterations of the DISP. Finally, we offer some tentative findings and conclusions around the effectiveness of our approach in engaging students of varying abilities and attitudes. We hope this paper will aid educators in devising and delivering digital-interactive projects of their own.

## Background

Based on previous smaller-scale digital storytelling events, and empirical studies into interface design and user experience (Pope 2006; 2009b; 2010; 2017) the software platform Genarrator was created (Pope 2009a; 2013a), and has been continually re-developed for education and community use. It is a tool which makes it easy and undaunting for school students or other users to create their own digital interactive narratives. Designing, building and publishing a fully working, digital interactive narrative usually involves at least some coding, even in the simplest platforms,

e.g. Twine – Genarrator however, is highly user-friendly and requires minimal digital media know-how. It is a free-to-use, online narrative builder and publishing site, open to anyone. Genarrator has been used extensively in undergraduate teaching at Bournemouth University (Pope 2013 a,b), at other UK universities, and in other school projects. It is the software platform used in the two projects focused upon here.

The most recent background to the two projects here was a week-long production carried out at the AIM Central creative hub in Bournemouth. This project served as a kind of pilot for the two versions we analyze in depth here. This iteration exploited Gyori’s experience as a television writer-producer and an education scholar who has studied student-centered learning (Gyori, 2013), the theory-practice divide (Gyori 2016), digital collaboration (Gyori & Charles 2017) and interactive story design (Gyori 2019).

The AIM project focused on five vulnerable young people. Over a period of five days, they were tasked with scripting, producing and building a complex narrative entitled, *Friend-Zoned*. We will refer back to this project below. Follow this link to the project: <http://genarrator.org/view/7jf4el44s70pvpqgy>. A short student-made “documentary” about this project can be found here: <https://www.youtube.com/watch?v=PSSvcKL3GbU>

## Methodology

### *Action research in theory*

Employing an Action Research approach (Koshy 2005; McNiff 2013) to note and assess the strengths and weakness of the AIM project, we devised new projects with the Bishop of Winchester Academy in Bournemouth, UK.

Action Research has been around for a long time: most scholars acknowledge Kurt Lewin as the originator of the term (see Lewin, 1946). However, as McNiff (2013: 16) notes, “some, especially in higher education, (have) refused to think of practice-based learning and its outcomes as ‘real’ research, or to entertain the idea that practitioner-researchers could generate theory”.

Action Research was chosen as an underpinning model for our linked projects because it offers a compatible framework for the kind of situation we were working in, i.e. practice-based investigation in an environment established by the participant school, not entirely in our control, and certainly not laboratory sterile. We argue that practice does, in itself, produce knowledge, and our wish is to capture and disseminate said knowledge.

We have, therefore, set out to show how our practice-led research can be developed and delivered in a real-world setting. The researcher will certainly be present and influential, which also seems to run contrary to the conventions of empirical research (see e.g. Denscombe, 2001), but in an Action Research framework this is viewed as an acceptable and necessary mode of critical engagement (Koshy, 2005).

According to McNiff, “knowledge is always situated within the groups of people who create it, although its uses for wider influence are potentially infinite” (2013: 17). This understanding of what knowledge can be suits our vision and our practice. We want to show that practice-based insights can generate valuable learning for participants and can also offer up findings, which can be analysed, discussed and used to improve practice.

#### *Action Research in practice*

In order to refine the DISP learning design, we sought feedback through a number of channels including, direct observation, informal chats, formal interviews and written surveys. After both projects, all 40 student participants filled out the survey. There was roughly a 50/50 split of male and female students. Most came from lower-middle to working-class backgrounds. Some of their responses will be included below.

When preparing to analyze our findings, we considered several versions of the Action Research model (e.g. Elliott 1991 Kemmis and McTaggart, 2000; O’Leary, 2004). We opted for the Action Research model suggested by McNiff (2013). This approach offers a balanced and realistic appraisal of what Action Research may deliver and also acknowledges its position in current research culture. We quote McNiff’s (p.105) key stages below and offer a few examples of how our practice was informed by this cyclical methodology.

- *“We review our current practice”*: in the 2016 AIM pilot iteration, we spent much too long on scripting, allowing arguments between the young participants, and indeed differences of opinion between the staff. Therefore, when planning the two most recent projects, we scheduled briefing and scripting sessions before the actual production week, to make sure that all of the allocated production time was effectively exploited.
- *“identify an aspect we wish to investigate”*: we wanted to see if input by media practitioners supported by undergraduates would motivate a group of fairly reluctant young people and if the week-long activity would produce finished functioning interactive stories. This phase in itself was influenced by reflection following the AIM project.
- *“ask focused questions about how we can investigate it”*: we spent several hours discussing with the school teachers what would be the best ways to work with the young people. For example, would they be best motivated if they were allowed to choose their own teams, or should the teacher do that, mixing genders, aptitudes, and personalities? Ultimately, we opted to have the teachers take control of the grouping process; however, we did ensure that there was at least one writer, one photographer, and one potential leader in each team.
- *“imagine a way forwards”*: we needed to build a working party of practitioners and assign undergraduate mentors to work with each school-student team. Planning could then be developed

with these stakeholders in place. We hadn’t used undergraduate mentors in the AIM project, but reflected that the presence of young-adult practitioners, near the age of the Year 10 participants, might well enhance many aspects of the project.

- *“try it out and take stock of what happens”*: in 2018, one of the undergraduates we recruited to act as a team mentor turned out to be quite shy. As a result, they were not very involved in the production process and tended to sit aside and watch the Year 10 students, rather than help with organizing and offering technical support. To prevent this from happening again, we became much more specific in our recruitment procedure for 2019, making sure that each undergraduate we enlisted had the technical skills to support the Year 10s, but also the personality and attitude to organize and steer the younger students.
- *“modify our plan in light of what we have found and continue with the action”*: for project 1 in 2018, the Bishop of Winchester Academy offered a sixth former to work with each team of Year 10 pupils. This approach proved unsuccessful, as the sixth formers felt disconnected from the project, so we dropped this element in 2019.
- *“evaluate the modified action”*: as project 2 developed, we could clearly see that the production process was actually smoother without having the sixth formers involved.
- *“and reconsider what we are doing in light of the evaluation”*: these reflections are in sections 4 and 5 below.
- *“a new action–reflection cycle”*: we are currently devising the next project.

Koshy (2005: 21) suggests benefits which the action research approach may bring, and, below, we outline how we experienced some of those benefits:

1. *“Research can be set within a specific context or situation”*: it was crucial that our work be carried out in a school setting. We wanted to ensure that the Year 10 pupils felt at home in the learning environment and did not feel that they were the subjects of some kind of experiment.
2. *“Researchers can be participants – they don’t have to be distant and detached from the situation”*: when it comes to organizing and running these projects, the input of the teaching team is important and influential. For example, our university photography specialist had a positive impact on the way the Year 10s conceived and shot their photographic compositions.
3. *“There are opportunities for theory to emerge from the research rather than always follow a previously formulated theory”*: during the Project 1 presentation session, we learned that the culturally sensitive subject matter of the stories being created could generate problematic

discourses. This challenged us to rethink some of our assumptions about the theory-practice divide.

4. "The study can lead to open-ended outcomes": in the surveys the students filled out, many of the participants said the project had influenced them to consider enrolling in higher education and possibly pursuing a media career.

#### *Student-Centred Learning*

From the outset, the DISP was conceived as a student-centered learning initiative. Each iteration of the project has involved some overt instruction, establishing basic guidelines and workflows; but the majority of the educational experience has been driven by the interests and efforts of students. Therefore, the key insights that have emerged all reflect a pedagogic approach that promotes autonomy, critical thinking and high levels of engagement (Barnes, M. 2013, McCombs, B.L. 2006, Robinson, V. 2011)

The following pages organize these insights into two overarching categories: experiential learning, and social learning. We begin with experiential learning, which explores how hands-on pedagogy affects the individual student (Bruner, 2006; Edward Deci, 1971). Next, we focus on social learning. This section considers how students learn from and identify with various peers, stakeholders and support staff (Csikszentmihalyi & LeFevre, 1989; Lave & Wenger 1991).

One of the benefits of the student-centred teaching/ learning is that it allows teachers to learn alongside the students we are guiding. In line with the Action Research methodology, each iteration of the project has been an opportunity to rethink and refine our approach.

In addition to discussing setbacks, we also wish to celebrate what has worked about the project. In particular, we also acknowledge the highly positive response from the Year 10 students. The written survey that the students filled out after the last two iterations of the DISP included a Likert scale from 1-5 tied to various categories, 1 indicating "strongly disagree" and 5 indicating "strongly agree". Below are the percentages for categories where students picked number 5: 'strongly agree', combining all 40 students in project 1 and project 2:

- Learned a lot from BU staff - 78%
- Learned a lot from BU students - 78%
- Learned about media hardware and software - 61%
- Learned about interactive narrative structure - 61%
- Learned about telling stories using a wide range of media - 61%. (Gyori and Pope 2019 n.p.)

**NB** the sources for the above statistics, and the quotations from feedback surveys which are used below, can all be made available to readers upon request.

## **Findings and Discussion**

### *Experiential Learning*

Dewey (1893) understood that learning is most effective when it does not feel like learning at all, when students are so immersed in a passion-driven process of problem solving they forget they are acquiring skills and forming new knowledge. This is the experiential dimension of student-centred education.

Perhaps paradoxically, in order for students to feel free to experiment and innovate, they first need a clear understanding of the rules of engagement, and these rules must be clear and consistent. This involves an approach that Bruner identified as "instructional scaffolding" (2006). Scaffolding is the educational support necessary to effectively guide student-centered learning.

As Yelland and Masters explain:

Teacher decisions about the level and type of scaffolding will depend on a number of factors which will include the nature of the task, the needs and interests of the children and the concept/ processes involved and opportunities to share ideas with peers or present them to an authentic audience (2005: 380).

When supervising the DISP, we noticed that students often worked independently on portions of the research and writing tasks, yet tended to require more support when it came to complex tasks requiring greater technical and aesthetic proficiency, for instance the process of filming video assets for their interactive narratives. When asked about the biggest team challenge that they faced, the most common answer involved filming the scenes. As the teaching team anticipated such challenges, the filming was designed as a highly scaffolded portion of the learning process, with two HE tutors helping to guide this portion of the production process.

In practice, scaffolding for the DISP involved establishing clear and consistent production workflows, fixing deadlines and assigning specific roles and goals. Also, as noted by Heron and Steckley (2018: 15), "The scaffolding ... should be aimed at enhancing the autonomy and independence of the young people in the co-production process".

In terms of the learning design structure, not all of this needs to be imposed by the teaching team. For instance, allowing the students to decide roles they will perform, helped them feel more in charge of the learning process and thus more invested in its outcomes.

For the two projects, the students did almost all of the editing and interface design. This degree of immersion in the production process made for a particularly meaningful learning experience. Year 10 teacher Sarah Dimmer said this about our hands-on approach: "The value is I've had a number of students come up to me and say, 'I see why you taught us this.' It's just engagement for them, and they've actually had a chance to see what the world of media is like" (Gyori & Pope 2019 n.p.).

As for fixed deadlines and schedules related to staff interactions, the student teams tended to thrive within these constraints as long as they were clearly explicated and consistently enforced. Regular “catch-ups” and end-of-session roundups appeared to ease anxieties regarding what was expected of them.

Another balancing act related to experiential learning involves the delicate interplay of extrinsic and intrinsic motivation. Designing learning experiences based on extrinsic motivation involves creating clear rewards and penalties related to learning requirements. On the other hand, designing learning experiences based on intrinsic motivation involves creating opportunities for students to gain new forms of mastery and also demonstrate this mastery (Deci, 1971).

Reeve (2009) suggests teachers should support autonomy, finding ways to allow students to think and act for themselves. This is especially crucial as students mature because, according to Ryan & Deci (2000) intrinsic motivation appears to become weaker with each advancing grade. As the interactive stories were conceived, written, performed and largely constructed by student teams, there were ample opportunities to harness the power of intrinsic motivation. The stories quickly became passion-driven endeavours that afforded opportunities to shine both as individuals and as a group.

Because the DISP leverages intrinsic motivation so effectively, it is easy and perhaps tempting to overestimate the power of this educational driver. For instance, the 2016 iteration of the DISP relied almost entirely on intrinsic motivation. As mentioned earlier, we were working with AIM, a charitable organisation focused on supporting at-risk teens. As there were few extrinsic structures in place, our young participants (ages 17-19) were not compelled to attend the sessions or engage cooperatively with each other or with the teaching team.

One issue that arose was related to what might be called the negative side of intrinsic motivation. Although the project afforded opportunities for all participants to shine, particularly charismatic and talented participants were able to command the spotlight more effectively than others. In one case, this led to some jealousy and resentment, as, temporarily, one participant tried to get another participant removed from the project because they felt that the other was getting too much camera time.

Subsequent iterations of the DISP have all involved clearly established extrinsic constraints, including mandatory attendance and participation. This has helped to keep students turning up, staying on task and working in a cooperative fashion.

We have found that negative behaviours were more likely to result when students feel left out of the process and then stop participating, argue with others, or act out to get attention. In the survey some students mentioned not wanting to work with particular students again. Others complained that some of their peers were not doing enough work. One student felt they were being excluded.

As Bandura (1976) points out, participants are not merely controlled by the learning environment, they also help to constitute it, for good or for ill. This is why students must be properly supported, rather than coerced, in a manner that allows them to feel empowered and heard, but also carefully guided through the learning process.

### *Social Learning*

Students are often most invested in the learning process when working alongside others, sharing insights and skills. This allows them to acquire knowledge and skills that can later be deployed without the support of others (Vygotsky 1986).

The DISP has a strong social learning dimension. Students work shoulder-to-shoulder with peers, staff and the undergraduate mentors, developing different types of learning based on specific relational dynamics. Each new iteration of the project has constituted an opportunity for our teaching team to establish what Lave and Wenger call a “community of practice” (1991: 22).

The Bishop of Winchester teachers acted primarily as project coordinators and support staff. They provided the valuable extrinsic elements, ensuring students turned up, stayed engaged and paid attention to the visiting educators. As a result, students tended to view them as authority figures mandating and enforcing the rules of proper engagement.

In contrast, the university staff were tasked with focusing on particular skills (videography, photography, sound design, and web design). Each of us took turns working with the different student teams. Due to our specialised roles, we were viewed as subject matter experts, and as visitors to the school, we found the students welcomed our input.

The HE undergraduates engaged with the student teams in a slightly different manner. Rather than work across the teams, each undergraduate was assigned a single team to supervise and mentor. This afforded opportunities for them to develop stronger bonds with a specific group of students. An additional, unintended bonus of this arrangement was the powerful sense of identification many of the younger students formed in relation to these slightly older role models. Our students were ages 20-21 and the Year 10 students were ages 14-15. This four to six-year age difference created a sense of aspirational identification. The younger students might struggle to identify with the older, more experienced HE staff, but it was easy for them to relate to the HE students, and this created opportunities for deeper and more meaningful engagement as they sought the approval and camaraderie of these slightly older mentors.

In addition to collaborating with all of the different stakeholders, the year 10 students of course primarily worked with one another, in their production teams. Peer-to-peer collaboration was one of the most powerful dynamics within this community of practice. Frequently, students helped one another gain mastery of everything from technical skills (white-balancing a camera), to communication skills (pitching ideas), to creative

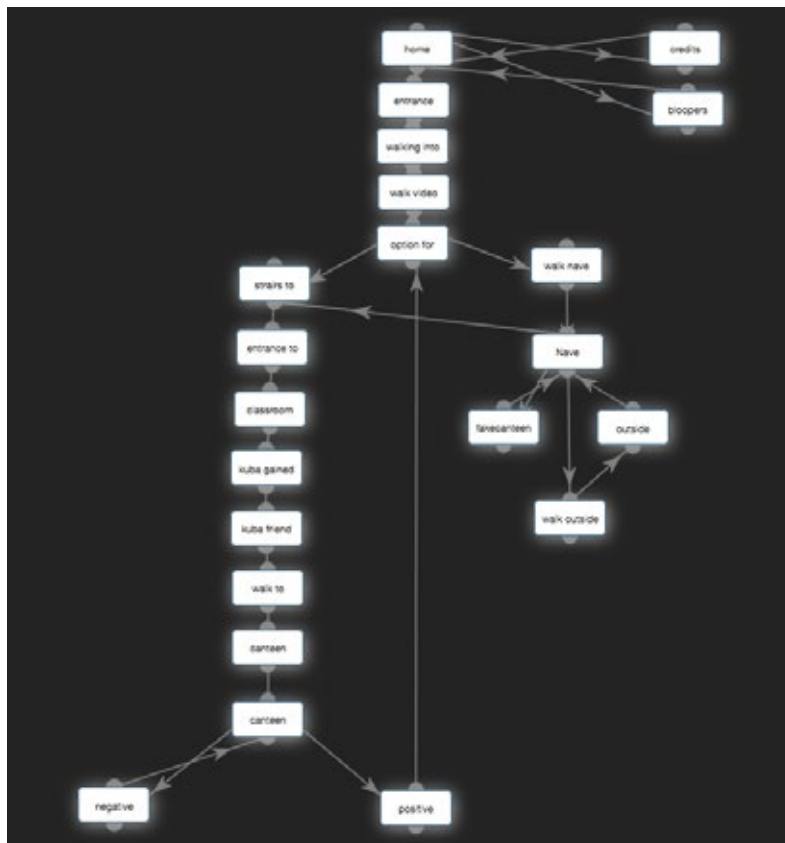


Figure 1. Story Mapping  
(permission of Bishop of Winchester authors)

writing (inventing a story), to interactive design (testing branching narrative-paths).

One Year 10 student who was initially reluctant to participate in the DISP, became increasingly engaged throughout the production process and eventually had this to say about collaborating with their fellow students: "This put us all together like I've never seen them like this before. They were so engaged. It brought everyone together. Everyone was happy and everything".

Here are some additional survey responses that reflect the social dimensions of the learning process: "Made me more confident in acting and working in a group'...'I feel like my team did really well with shooting and editing all of it".

Another social dimension of the DISP is Vygotsky's concept of the Zone of Proximal Development (1978: 86), noted also by Heron and Steckley (2018). According to this view, effective education experiences challenge learners to reach beyond their present abilities by learning from peers and mentors who model effective behaviors for them (Bandura, 1994). Basawapatna et al (2013: 12) have combined the concepts of flow (Csikszentmihalyi 1975) and the zone of proximal development, coining a new term, "the zone of proximal flow". This occurs during a social learning process when a whole team of students achieve a simultaneous state of heightened engagement. This is facilitated by striking an effective balance between challenge and skill (Csikszentmihalyi & LeFevre 1989; Schüler 2007).

Here are some student comments that reflect this state: "Exciting and helped the brain think...", "I loved using all the types of media...", "I was happy during the entire project".

Another indication of a positive flow state is that 74% of the students reported that they enjoyed writing stories in this new way more than they enjoy traditional writing.

The Year 10 students had little experience organizing camera shots into coherent narrative sequences: therefore, our two video specialists carefully modelled this process. Each started out by directing a sequence of shots and editing "in camera" so that the students could envisage how the dramatic action would play out. Each instructor then asked for a student volunteer to take his place and, with a bit of guidance, direct the next sequence. As the student-director gained increased mastery, the specialist offered fewer and fewer suggestions, allowing the student-director to take control of the filming.

Such evolving interactions make it clear learners observe and reproduce skills modelled by others. To help assist in this process, the mentor must create opportunities for the learner to struggle a bit, providing the appropriate level of guidance for their current level of expertise, but no more than that, so they are able to stay in flow and continue stretching toward new learning.

When this occurred during the DISP, students who previously seemed disengaged became far more interested and involved in the learning process.

Impressed by this increase in student engagement, Year 10 tutor Sarah Dimmer remarked, "For me, I've just seen so many young people change. I've seen them in a different light, and maybe that's the biggest thing that I've taken from this. I know that they can focus. I know they can do it" (Gyori, B & Pope, J. 2019, n.p.).

## Conclusions

To conclude, we reflect upon our initial research questions and offer thoughts for the development of future such projects.

1. *How can we ensure that effective experiential learning occurs when students are creating interactive stories?*

In order for students to feel able to experiment and innovate, the "rules" must be clear and consistent. In light of this, we feel that the extra pre-production writing and preparation time offered for project 2 was vital for the students to really come to terms with the practicalities of production and engage with their own story ideas. The structural and practical value of this thinking-planning phase seems to us to afford more fruitful creativity once production begins.

We have seen how much students like to be challenged, provided the rules of engagement are clear and fair and the outcomes are achievable. Adult input should establish clear and consistent production workflows, with clear and doable deadlines. Specific roles and goals should be assigned. It is important to achieve the right balance between such structural assurances and allowing space for more free creative expression within that instructional scaffold (Bruner 2006).

Overall, our teaching team values this process because we have directly observed that it affords deep learning. Time and again, we have seen participant students problem solve, innovate and collaborate, while demonstrating high levels of metacognition.

2. *How do students learn from each other and from mentors when creating interactive stories?*

The creation of a "community of practice" (Lave and Wenger 1991: 122) seems to us to be of central importance if a demanding project is to be completed on time and with a successful end-product.

The enthusiasm for the project was undoubted. Here are some typical comments: "If we had more days and time, we could extend it and do more shots and make the story even better...", "I loved every second of it and I would like to do it again...", "I'm sad that it is over, but happy that it went well and excited to show everyone..."

Because the Year 10 students find it so enjoyable, they are able learn a great deal from the process of becoming interactive writers, story designers, researchers, directors, performers and producers. This is the power of student-centred learning.

But we did see that tensions can creep in, as noted above in all three iterations of DISP. This is where the staff team and undergraduate mentors must act to re-establish harmony. In particular the overseeing presence of the school teachers, and the university staff helped to maintain that that sense of community; but we also believe that bringing the undergraduates in as mentors was a key factor in keeping each production team together.

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**Dr Brad Gyori** is Principal Academic in Digital Storytelling at Bournemouth University, UK. He is the Programme Leader for the MA in Creative Writing and Publishing. He also teaches journalism students how to make interactive documentaries. In addition to working as a writer-producer for such networks as MTV, VH1, E!, FX and HBO, he was the head writer of the Emmy winning series Talk Soup. He has been nominated for 5 Emmys. His theatrical works have been presented by Steppenwolf theatre, Phoenix Theatre, Bournemouth Emerging Arts Fringe and Poole Lighthouse. He is co-director of the media arts conglomerate Doppelganger Productions. His articles have appeared in *Journalism and Mass Communication Educator*, *Interactive Storytelling*, *Journalism Education*, *The Interdisciplinary Journal of Problem-based Learning*, *Media Practice and Education*, *Flow* and many others.



**Dr James Pope** is a Principal Academic at Bournemouth University. As well as several publications around his research into the reading and writing of digital fiction, James has also published six novels for children and teenagers. His interests are: how digital media are changing narrative forms and writing practices; the teaching of creative writing, particularly in digital media environments; and children's literature. He is the co-founder and co-organiser of the annual international New Media Writing Prize, and created Genarrator, a free-to-use online digital storytelling tool. He co-curated the ICIDS digital storytelling exhibition in 2020. His most recent publication is 'Jenny's Story', in *Women's Artistic Gymnastics*. Eds. Kerr, Barker-Rucht, Stewart, and Kerr, Routledge, 2020.