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## Highlights

- There is a global lack of content on learning disability in nursing curricula. CitySCaPE is a multi-media resource that aims to address this in a user friendly and meaningful way
- CitySCaPE was deemed to be realistic especially by students who had previous personal or professional experience.
- Understanding of Learning Disability by nursing students can be improved following use of CitySCaPE.

## Introduction

A series of high profile reports (Mencap 2007; Mencap 2012; DH, 2012) have highlighted the health inequalities and inadequate standards of care that have been delivered to people with learning disabilities in the UK. Lack of knowledge and preparation has repeatedly been cited in the literature as a contributing factor (Michael, 2008)

The consideration of learning disability within the context of physical and mental health care is an area of nurse education in the UK that was often only given a passing consideration (Adshead et al, 2015). This is a pattern reflected across the globe. Trollor et al (2016) identified that in Australia there is no specification for Learning disability to be taught in Nursing programmes. Robinson and Griffiths (2007) identified a lack of content around learning disability in many countries that have adopted generic nursing qualifications such as the USA and New Zealand. Much of nurse education considers how to deliver care effectively to people but does not always consider the impact a learning disability may have upon a person's ability to

communicate their needs, understand their care, and make informed choices. Adshead et al. (2015) identified that preparation around the needs for people with learning disabilities in most pre-registration nursing programmes in the UK is lacking, and relies upon the motivation of individual lecturers. Temple and Mordoch (2012) identified that Canadian nursing programmes also have little education and experience with learning disability. This was identified in their paper as resulting in suboptimal attitudes towards learning disability.

Care can be negligent and damaging by not considering how approaches need to be adapted for people with a learning disability. Brown and Kalaitzdis (2013) reviewed the literature and identified; knowledge, skills, communication, identification of needs and person centeredness should be key foci for nurses when caring for people with learning disabilities. Brown et al. (2016) outlined key principles that would improve the care of people with learning disabilities. Compassion and person-centeredness were helpful to the patient journey and improved patient safety. Nurses need to be equipped with the skills and understanding to provide compassionate and person centred care to promote competence.

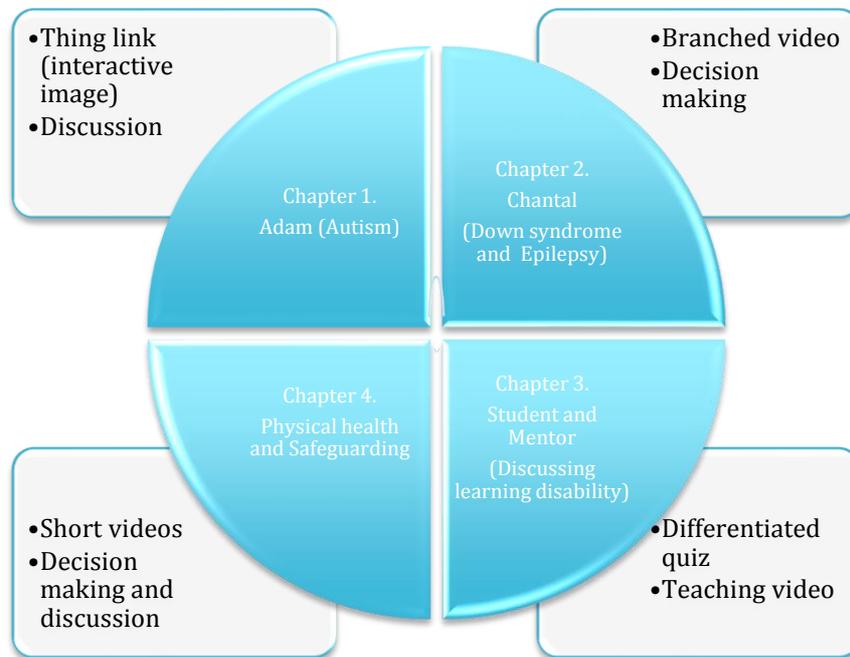
Improving the education around learning disability at a pre-registration level has been recognised by the Nursing and Midwifery Council (NMC) in the UK. The NMC specifies that a central standard of nursing education should be the ability of all nurses, across all fields to “be able to recognise and respond to the needs of all people who come into their care including [...] people with learning disabilities” (NMC 2010 p. 17). In the Healthcare for All Independent Inquiry Michael (2008, p33), a key finding was the importance of “including basic teaching about learning

disabilities in all pre-registration courses and involving people with learning disabilities in providing it.”

### Inside CitySCaPE

To introduce the subject of learning disability to pre-registration students, a multi-media resource was developed; City Simulated Community and Practice Environment. CitySCaPE uses the lesson function in Moodle which creates chapters of information. The students work through these chapters following “John” a student nurse. The chapters include a session with an expert, managing a seizure, autism awareness, safeguarding, physical assessment and carers perspective. Video and interactive images are used. Students test their knowledge with quizzes that vary in complexity, as per the student’s perceived level of expertise allowing them to tailor the experience. The lecturer controls the pace of the session through Moodle and students complete a work book. The students also engage in group discussions. Diagram 1 is a schematic of CitySCaPE.

### Diagram 1.



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A paediatric version, includes a scenario based around the preparation of a child with learning disabilities and their parent for admission to hospital and audio interviews of parents talking about their experiences.

A workbook accompanies the resource and contains questions that pertain to the videos for the students to consider individually and then as a group. The session is undertaken in a purpose designed room which facilitates computer work and round table discussion.

The session is delivered to both Postgraduate and Undergraduate pre-registration nursing students in part one of their programme. The session takes around three hours to complete.

Research questions.

How did pre-registration nursing students evaluate CitySCaPE within the context of education and practice?

Background and rationale for development.

Previously, Shareville (Saunders and Berridge, 2015) was used to deliver learning disability education at this institution. Several key areas were identified for creating a new resource that incorporated working with service users, carers, and more cultural diversity, using high fidelity multi-media resources.

The Council of Deans (2015, p12) identified the essential components for education around learning disability and these were incorporated into CitySCaPE

- Communication
  
- Attitudes towards people with learning disabilities
  
- Capacity/consent
  
- Equality/reasonable adjustments
  
- Role of carers
  
- Role of learning disability nurses/teams
  
- Learning Disability and health issues
  
- Challenging behaviour

- Placement experience.

CitySCaPE uses videos and audio to observe positive practice, promote decision making, and understand the service user and carer's perspective. Rose et al (2012) found that these factors could improve attitudes towards "intellectual disabilities". Sanders et al (2008) identified deficits in the knowledge of American Nurse Practitioners. They utilised a multimedia approach using videos and a case based approach. This study demonstrated a significant improvement in knowledge and the comfort that practitioners felt in difficult situations related to learning disability. Adshead et al (2015) highlights the importance of using "innovative and sustainable educational initiatives". Identifying suitably qualified teachers to deliver education around learning disabilities is challenging. CitySCaPE had to be deliverable by non-specialist lecturers. The innovative design of CitySCaPE allows for specialist information and practice to be delivered on-line. CitySCaPE teaches, and then the non-specialist lecturer facilitates the discussion about wider more generic issues.

In a project incorporating service users who had learning disabilities into the classroom, Bollard et al (2012) provided a first-person experience for student nurses. They concluded that this achieved a deeper level of learning and greater empathy towards people with learning disabilities. This approach is difficult to replicate. Challenges include large cohort sizes, which require a broad pool of service users to draw from, finding service users, supporting them and the ethical challenges that may occur around capacity and informed consent. CitySCaPE worked with actors that had learning disabilities themselves, including interviews with them incorporating their

own personal views. This reduced risk, and was replicable between groups to ensure standardised educational value.

CitySCaPE is informed by pedagogies relevant to using simulation in education. Serious gaming is a concept whereby learning is achieved through a process or activity that includes elements of game play. Oei and De-Wit Zuurendonk (2011) identify that serious gaming is a stimulating learning method. CitySCaPE does not involve play, but takes the idea of engaging in activity through a variety of media to promote learning and create experience. Wouters et al (2013), found an improvement in learning but not motivation when serious games were used. They recommended that this could be improved with the addition of group based activities.

Meaningful narrative is an important component of simulation (Walsh, 2011). Examples of narrative based resources include; Stilwell (Walsh, 2011) and The Neighborhood (Giddens, 2007). Stilwell uses a strong narrative and high quality video to engage the learner. The Neighborhood builds a narrative around knowing the characters. These simulations using longitudinal narratives, were delivered over periods of weeks. CitySCaPE was limited in the amount of information that could be given to build the narrative around the characters as it is undertaken in a stand-alone session. A balance had to be struck between meeting learning outcomes, and providing background information to maintain interest.

Jeffries (2005) applied Chickering and Gamson's (1987) pedagogical principles to using simulation in education to promote student satisfaction and learning. These were applied in outlining the design of CitySCaPE.

Active Learning - Students learn best when engaged in activities requiring active participation. CitySCaPE tests knowledge through completion quizzes and a workbook. Interactive graphics enable students to highlight areas of a scene, to reveal more information.

Feedback –The blended learning approach encourages students to work in groups, getting feedback on their understanding of the scenarios and their ideas.

Student-faculty interaction – Students participated in the design of CitySCaPE and acted in the scenarios.

Collaborative learning – Students collaborate in making recommendations for future practice.

High Expectations – CitySCaPE is designed with an expectation of active participation in both the online and group based work. Specific instructions within the resource and a classroom based facilitator encourage this further

Diverse learning – CitySCaPE was conceived as being “inclusive by design”. The resource was created to meet the needs of the diverse learner rather than to have to adapt it later. Information was chunked, text limited on the page, a large clear font, limited time on task, and a variety of learning resources. Students with visual impairments could enlarge the screen and the work book was printed for them in a larger font.

Time on Task – CitySCaPE takes three hours to complete. The facilitator controls the pacing of the session.

Using the Chickering and Gamson (1987) framework, CitySCaPE has met all the requirements for a pedagogically sound learning resource.

### Methods.

An exploratory, mixed-methods research design was used to evaluate CitySCaPE. One hundred and seventy-five students undertook the CitySCaPE session. They were asked if they wished to complete the questionnaire at the end of the session. The questionnaire gathered qualitative and quantitative data. One hundred and forty-six students completed the questionnaire. The questionnaire gathered demographic data about field of practice and gender, and if they had any personal or professional contact with people with learning disabilities and quantified this. A five point Likert scale measured specific aspects of CitySCaPE. Thirteen questions were based upon the questions used by Feingold et al (2004) exploring simulated clinical experiences. The questions were grouped into realism, transferability and value of experience. Students were asked to give further comments about CitySCaPE and to give permission for their comments to be used in publication.

Full ethical approval was sought for the investigation of CitySCaPE as a research project. Full ethical approval was granted with a limited perceived risk to students. Participation was entirely voluntary. Students were not required to stay and complete the questionnaire if they did not wish to. No inducements were given. Participating in using CitySCaPE was a part of the student's timetabled class-room time. However, it did not link to any assessment. Students were very unlikely to feel coerced into completing the questionnaire.

Opportunistic sampling identified participants. Questionnaires were administered at the end of the CitySCaPE session along with a participant information sheet.

Descriptive statistical analysis was undertaken whereby answers were collated and converted into percentages and data analysed according to different groupings of students. To conduct inferential statistics on differences between the responses of students in different fields of practice, ratings were converted to a numerical scale (where 1 = strongly disagree, and 5 = strongly agree). Kruskal-Wallis tests were conducted for each question, with 'response' as the dependent variable, and 'field of practice' as the independent variable. Where results were significant, these were followed by Mann Whitney tests to identify differences between groups.

Comments were analysed using content analysis. Comments were organised by key area of reference and similarities in content and specific key words were identified. Vaismoradi et al (2013) recommends content analysis as a useful methodology to report on issues mentioned in data. Comments were mainly brief and only a sentence or two. It could be argued here that this study maybe lacking in reliability owing to there being a lone individual working on this aspect of the study. There was no opportunity for another researcher to rate the themes. All responses were anonymous which reduces the opportunity for rater bias.

## Results

One hundred and forty-six students that completed the questionnaire. There were nine males, 131 females and six declined to answer. 51% (n=74) of the total group were students in the adult field, 31%(n=49) were child students and 15%(n=23) were mental health students. Table 1 outlines the responses. 67% (n=98) of the students had not worked in a professional capacity with people with learning disabilities. 31% had worked in a professional capacity and most were for less than six months. 30% (n=44) had no personal contact with people with learning disabilities. 40% (n = 59)

identified as having a little personal contact, which was quantified in the questionnaire as only occasional contact. 19% (n=28) had some contact which was quantified as regular contact. 14% (n=10) had had a lot of contact.

Responses, were dichotomised into Agree (incorporating all agree and strongly agree responses) and Disagree (all disagree and strongly disagree responses). This was done to simplify the reporting of the data. In retrospect, it may only have been necessary to administer a 3-point scale rather than 5-point.

**Table 1.**

	Agree (strongly/agree)	Neither Agree/Disagree	Disagree (strongly/disagree)	No Answer
<b>1)CitySCaPE has helped prepare me for clinical practice</b>	84%  (60%/24%)	12%	4%  (1%/3%)	
<b>2)CitySCaPE created real- life situations</b>	89%  (36%/53%)	5%	4%  (2%/2%)	2%
<b>3) I felt immersed in CitySCaPE</b>	59%  (19%/40%)	26%	10%  (3%/7%)	5%
<b>4) I could</b>	54%	28%	15%	3%

<b>relate to the characters in CitySCaPE</b>	(9%/46%)		(3%/12%)	
<b>5) CitySCaPE tested my knowledge</b>	84% (27%/57%)	12%	4% (2%/2%)	
<b>6) CitySCaPE tested my skills</b>	68% (21%/47%)	23%	7% (3%/4%)	2%
<b>7) CitySCaPE tested my decision making</b>	74% (23%/51%)	21%	5% (2%/3%)	
<b>8) CitySCaPE has improved my understanding of learning disabilities</b>	90% (48%/42%)	4%	5% (3%/2%)	1%
<b>9) CitySCaPE is an effective method of learning</b>	84% (37%/46%)	10%	6% (4%/2%)	
<b>10) The room was</b>	90%	5%	5%	

<b>appropriate for using CitySCaPE</b>	(42%/48%)		(2%/3%)	
<b>11) I found CitySCaPE easy to use and navigate</b>	92% (45%/47%)	5%	3% (2%/1%)	
<b>12) I will remember using CitySCaPE</b>	84% (34%/50%)	8%	7% (3%/4%)	1%
<b>13) I would like to use CitySCaPE again in another area of practice</b>	78% (37%/41%)	13%	9% (6%/3%)	

Question 1 asked students to rate their agreement for CitySCaPE preparing them for clinical practice. Child (91%) and mental health (94%) students agreed whereas a smaller proportion of Adult (84%) agreed, although this difference was not significant ( $\chi^2(2)=2.032$ ,  $p=3.62$ ). There was little difference between levels of agreement based upon whether students had any previous professional contact (84%) or not (85%) agreeing that CitySCaPE prepared them for clinical practice. The amount of professional practice did seem to impact upon the level of agreement as the students

with extensive professional experience of two to five years and five years or more showed significant levels of agreement (100% n=8). As this was only a group of eight students, cautious conclusions should be drawn. Students who had under six months' experience (n=17) showed a high level of agreement (94 %). The amount of personal contact students had had with people with learning disabilities showed a similar agreement level with the effectiveness of CitySCaPE as preparation for clinical practice. Whether students had no personal contact or a lot of personal contact, 86% agreed. The level of agreement dropped to 71% where contact was rated as some, (visiting or having contact on a regular basis).

Students were asked to rate their agreement regarding whether CitySCaPE creates real-life situations, 89% agreed. There was little variation between the fields ( $\chi^2(2)=2.442$ ,  $p=0.295$ ). Mental health rated it most highly with 100% of the group in agreement. There was little variation according to whether students had had professional experience of people with learning disabilities although the group that had had professional experience rated it slightly higher with 94% in agreement. Where students had experience of above 1-2 years, 2-5 years and 5 years+, 100% agreed that CitySCaPE created real-life situations. 93% of the group who reported having daily contact agreed for realism.

Students were asked how immersed they felt in CitySCaPE and this achieved a low level of agreement of 59% of the group, but had the highest number of non-answers for any question. The level of agreement of relating to the characters also achieved a low level of agreement of 54%. The lowest group was the child group with only 45% agreeing. When the results were examined according to gender 89% of the males in the group agreed, although there were only nine males in the group. Of the female

group, only 57% agreed that they could relate to the characters, with 13% disagreeing and 30% neither agreeing or disagreeing.

From question 5, students were asked if CitySCaPE tested their knowledge 84% agreed, although there was a trend towards a significant difference between fields of practice ( $\chi^2(2) = 5.723$ ,  $p=0.057$ ) with the adult group showing significantly lower levels of agreement than the mental health group ( $U=218.500$ ,  $p=0.018$ ). From question 8, 90% felt it improved their knowledge of learning disability and from question 9, 84% agreed it was an effective method of learning. The testing of skills, question 6, and promoting decision-making, question 7, showed levels of agreement with 68% and 74%. In terms of the design and delivery 92% of the students found CitySCaPE easy to use, and navigate with 90% feeling the room was appropriate.

Students were asked if they thought CitySCaPE would be memorable with 84% agreeing. There was a significant difference between fields ( $\chi^2(2) = 8.193$ ,  $p=0.017$ ) with adult students were less positive than child ( $U=946.000$ ,  $p=0.012$ ) and mental health ( $U= 204.000$ ,  $p=0.017$ ) in this respect. 78% of students agreed they would like to see CitySCaPE used in another area of practice. This varied significantly between the groups ( $\chi^2(2) = 13.062$ ,  $p=0.001$ ) with 96% of the mental health students agreeing, compared to 63% of adult students ( $U=170.000$ ,  $p=0.001$ ). Although only 61% of child students agreed, this did not differ significantly from the responses of mental health students, ( $U=874.000$ ,  $p=0.115$ ), but was significantly higher than responses for students in the adult field of practice ( $U=909.000$ ,  $p=0.003$ ).

### Qualitative data

Fifty-three of the students included additional comments on their questionnaire which were analysed qualitatively. The findings from the student's comments were organised into main themes of learning, relevance to practice, learning disabilities, use of videos, the lecturer, improvements and general comments. Students were coded based on the field of practice they were in, which group they attended and a number within that group. This enabled identification of individual responses.

### Learning:

Within the theme of learning, five of the students identified the group aspect of CitySCaPE as a useful way to learn.

*“Enjoyable session, very informative. I liked working in a group dynamic”*

*Child 8/1*

The interactivity of the resource was highlighted by three of the students as being beneficial to learning

*“Being interactive is a better way of learning for me and the scenarios were really helpful”*

*Mental Health 2/1*

Another student also mentioned their own learning style and how CitySCaPE suited them.

*“Nice to use computers for a change, added a fun edge. Fitted my style of learning as having dyspraxia and dyslexia it was arranged into sections which broke the session down and kept my focus”*

*Mental Health 8/1*

Two students recommended the use of CitySCaPE in other areas of practice.

*“I think it’s a useful tool for learning, perhaps we can have it on other areas of care aspects and hospital scenarios)*

*Adult 1/1*

### Learning Disabilities

Understanding of learning disabilities emerged as being significantly improved using CitySCaPE.

*“CitySCaPE has given me the curiosity to know more about individuals with learning disability. It has helped me to understand the individuals needs without discriminating against them”*

*Adult 9/2*

Some of the comments related to improving knowledge and understanding of learning disabilities, also elicited that CitySCaPE was effective in consider how to care for people with learning disability

*“This was an effective way of helping develop my understanding of people with learning disabilities and help increase my confidence in respect to how to act around and accommodate their needs.”*

*Child 2/2*

### Clinical practice

The student's comments about clinical practice fell into three main categories, knowledge, preparation for practice and insight.

Students identified that improving their knowledge would benefit their future practice.

*“The use of real-life situations allows us to gather a more relatable and realistic understanding of what certain situations can occur. Broadening our knowledge, this interactive tool helps students to prepare.”*

*Adult 15/3*

Two students identified that CitySCaPE can aid in preparation for practice.

*“I enjoyed today's session using CitySCaPE and found it an invaluable learning tool to help better prepare me in my chosen career as a paediatric nurse.”*

*Child 3/2*

CitySCaPE's role in enhancing the level of the student's insight into learning disability and sense of competence emerged.

*“The session was very helpful to gain more insight into learning disability and have a foundation knowledge of what to expect and how to deal with learning disability service users in practice.”*

*Adult 12/2*

### Use of videos

Mostly students reviewed the videos positively. Five of them commented specifically.

*“Using videos of real-life situations is a brilliant resource. It really makes a difference to just talking about ideas and examples. Including actors with learning disabilities makes it authentic.”*

*Mental Health 4/2*

One student did feel that the videos were too short which compromised their level of immersion.

### Lecturer

One of the lecturers delivering the session is a parent of a child with a learning disability. Students identified this as a positive aspect of the session.

*“X was very helpful giving real life examples, helped me understand both roles of parents and professionals when dealing with children with special needs”*

*Child 9/1*

Realism and authenticity were also identified in the previous comment about the use of videos and is an important quality of CitySCaPE

### CitySCaPE suggestions for improvement

A variety of aspects of CitySCaPE were identified as needing improvement. A number referred to the environment in which the session was delivered.

*“I hate this room it puts me to sleep.”*

*Adult 4/2*

Two students felt the session was too long and one of them found it lengthy due to having to wait for everyone else to complete at the same time.

*“The session appears to be long-winded and I feel should be kept short and precise. You should be able to go away and do at least half of this booklet as private study”*

*Adult 12/2*

Individual students also commented on areas such as not liking the design of the resource, wanting to answer questions on the screen not in the workbook, and more emphasis on practical skills.

### General comments

Three students commented that they felt CitySCaPE wasn't long enough.

*“Should have been a whole day. I learnt a lot and made me think about how I would like to be, but due to time I feel like I need to know more:”*

*Child 3/2*

The word 'informative' emerged on seven separate written comments from the students within several the key themes.

*“Very helpful and informative, all my questions were answered.”*

*Adult 10/1*

Two students specifically commented on wanting to use the CitySCaPE format in other areas of their programme.

*“I’m sure this is a very positive part of the programme which needs to be extended. Superb!”*

*Adult 9/2*

### Discussion

This paper has used mixed methods to research the question of how students evaluated CitySCaPE within the context of education and practice. In a critical review of using gaming within nurse education, Blakely et al (2008) identified that students have positive and negative attitudes towards these approaches, according to their learning style. The varied perception of CitySCaPE seemed to indicate that there was also some variation related to professional interest. The mental health groups were overwhelmingly positive about the experience showing consistently high levels of agreement. It could be argued that this may be reflective of similarities between mental health and learning disabilities.

In Saunder and Berridge’s (2015) evaluation of CitySCaPE’s predecessor, Shareville, found it was not representative of people with learning disabilities, and did not meet the needs of students with pre-existing experience or knowledge. CitySCaPE appears to have addressed this successfully, demonstrated by a key finding that students were strongly in agreement that the resource was realistic. The students who had personal and professional experience were most strongly in agreement.

Accommodating different learning styles and being ‘inclusive by design’ was a core element in the design process of CitySCaPE to meet the needs of students with different learning needs. Saunder and Berridge (2015) identified that students with dyslexia had found the multi-media approach particularly helpful. CitySCaPE appears to have addressed this, as a student with dyslexia found the specific design elements of chunking into sections and the use of videos particularly helpful. This approach is supported by the British Dyslexia Association (2016) who identify that dyslexia is often resistant to traditional teaching methods, and technology can be effectively used to promote learning.

Emma-Ogbangwo et al (2014) describe immersion as being vital in the design of interactive media. Immersion is defined as “the level of physical and psychological submergence within a virtual space”. Students demonstrated a low level of agreement for their level of immersion in CitySCaPE. This question also had the highest number of non-responses. The lack of response could have been due to not understanding what immersion meant. For future study this could be rectified by giving clarification of the term such as; immersion refers to how engrossed or absorbed you were in using the resource. Students also demonstrated a low level of agreement of feeling able to relate to the characters. The student chosen to play the role of the student nurse was male and the group were mainly female which may have impacted on results. This choice of lead character was deliberate because one of the criticisms of Shareville, (Saunder and Berridge, 2015) was a lack of representativeness. A purposefully broad spectrum of characters was chosen in terms of ethnicity, gender and dialect to reflect diversity. Future developments of CitySCaPE could resolve this by using virtual reality simulations in which the student themselves becomes the chief protagonist.

Immersion is closely linked to the concept of fidelity, described as the ‘degree of faithfulness with which a designer “recreates” selected elements of the entirety of the real world” (Wills, Leigh and Ip, 2011, p207). Students were asked about whether CitySCaPE created real-life situations to assess fidelity. This garnered a positive response and high levels of agreement were achieved. This was especially so in the group of students who had significant personal experience with learning disability and who it could be assumed would have enough experience to judge accurately. Ellaway (2009) examines the concept of fidelity, and suggests resources with limited fidelity can be equally immersive and contribute to learning by drawing on a strong narrative. CitySCaPE appears to have a high level of fidelity but is lacking in immersion. This could be due to factors such as the brevity of the videos which are all less than three minutes, or students not relating to the characters effectively. An enhanced narrative may improve the level of immersion. More back-ground detail regarding the characters may enhance a sense of “knowing” them, or creating a story through the resource maybe effective.

### Limitations

The production of CitySCaPE was undertaken on a limited budget and could have benefitted from more professional actors to work alongside the students. Likewise, a professional script writer may have enhanced the quality.

Originally the evaluation of this project was to have included the facilitators’ views but only three facilitators delivered the sessions and of these, one of them was the lead for the whole CitySCaPE project. Obtaining this perspective in the future would enhance the evaluation.

CitySCaPE was only evaluated for under-graduate students; there may have been a different outcome if post-graduate students had been surveyed, which would be a consideration for future research.

The thematic analysis was only undertaken by one of the authors and could have benefitted verification from an additional researcher.

### Conclusions

Overall this research had identified that CitySCaPE is positively evaluated by students within the context of their education and practice. It can deliver education to students around learning disabilities that is realistic, and improves knowledge and understanding of learning disability. The overall findings indicate that students with pre-existing experience both personal and professional rated the resource most highly. In addition, the comments made by the students add to the value of the resource in creating a realistic and valuable tool to communicate the principles of positive practice around learning disability. The resource suits a variety of learning styles and is seen by students as a novel way to learn. CitySCaPE could easily be used as a model to address other areas of practice that are traditionally seen as 'hard to teach', either due to a lack of available expertise, or the difficulty of not being able to explain concepts from practice verbally. Once these areas are delivered through engaging visual media, they become more understandable and the results of this study indicate that it increases the level of understanding.

Due to its build design CitySCaPE can be added to or altered and therefore offers a flexible and dynamic resource that could be adapted to meet the needs of a variety of professionals.

Areas for further research and exploration:

- An in-depth exploration of CitySCaPE's impact upon students' learning and perceptions though the use of interviews and focus groups.
- A retrospective consideration of CitySCaPE once students have been out into practice to see if CitySCaPE contributed toward their sense of competence and compassion towards people with Learning disabilities.
- Development of fully immersive virtual reality environments.

Some of CitySCaPE's content can be viewed, here, <http://goo.gl/sdy4Gc> .

#### List of tables and Diagrams

Diagram 1. Schematic of CitySCaPE

Table 1. Results table

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