

# Personal Expression and Digital Expertise: Exploring Malaysian Students' Multi-Modal Aspirations Through the Use of ArcGIS Story Maps

Sally Anne Param<sup>1\*</sup>, Danesh Prakash Chacko<sup>2</sup>

<sup>1,2</sup> Centre for English Language Studies, Sunway University, No. 5, Jalan Universiti, Bandar Sunway, 47500 Selangor Darul Ehsan, Malaysia

\*Corresponding Author's email: [sallyp@sunway.edu.my](mailto:sallyp@sunway.edu.my)  
<https://doi.org/10.61211/mjqr100201>

## Article Info:

Received: 15 June 2024

Accepted: 20 July 2024

Published: 15 November 2024

## ABSTRACT

The lived reality for young people in a highly urbanized environment is a challenge that previous generations did not have to face. Young people not only experience the transformation of their physical environment, but also the reworkings of values, family, education, and the economy that are now different. Within this constant flux of a changing landscape, engaging with young people for research purposes is also an endeavour that needs to be dynamic. This paper looks at how the aspirations of young people can be documented, as they desire to bring sustainable change to their quotidian life. Assessing their aspirations qualitatively is thus problematized; older, more established methods may not be able to capture their true intentions. This paper is based on an experimental study with undergraduate university students who express their ideals for a sustainable future through the ArcGIS Story Maps platform. The use of this tool enables a display of multiple texts - written essays, reports, photo essays, embedded videos, survey polls, maps, historical documents, visual pictures, case studies and even layout designs - as a demonstration of how young people can express their multi-modal views qualitatively. The main research technique used is the multimodal discourse analysis. Although this study is only exploratory, findings reveal that urban youth today are very willing to express their aspirations, although they do so in more creative ways. This experimental study hopes to raise pertinent questions for qualitative researchers: are researchers ready to study responses that incorporate multimodality? And are researchers ready to include the use of digitalised tools as a means of expression? It is hoped that this pilot study will challenge researchers to shift gears; to study young people's lives differently, and to incorporate more dynamic means of qualitative assessments to research findings.

**Keywords:** aspirations, multi-modal, story maps, young people

## INTRODUCTION

Youth voice has often been neglected in public narratives. Youth is a state of transition between childhood and adulthood, and in most formal definitions the period of youth spans from later childhood to early adulthood (Beazley et al., 2009). The United Nations defines youth as the "period of transition from the dependence of childhood to adulthood's independence, setting the age of youth for statistical purposes at the ages of 15-24" (United Nations, 2013, para. 1). This fluid age range is tweaked in this paper to a narrower scope of university students who are aged between 18-24. This definition is in line with European and other Asian narratives that also characterise university students as part of the 'young people' category (Bibizadeh et al., 2023; Westendorp et al., 2021). This paper will thus use 'youth', 'young people' and 'university/tertiary/undergraduate students' interchangeably to illustrate the nuanced scope of this age range.

When studying young people in Asian contexts, in particular, data that is collected and interpreted by adults can unconsciously invalidate youth expression (Hopkins, 2010). This lack of inclusion is called adultism; a cultural practice that is discriminatory because it systemically subordinates the views of young people and keeps them from exercising agency and personal decision-making (Kennedy, 2019). Due to the research site being controlled by adults, conducting qualitative research with this age group necessitates an informed understanding of their lived reality so that researchers can consciously enable their expression despite their younger age.

With reference to Malaysia, the gap in documenting the voices of young people continues. While past research on young Malaysians does exist (Ibrahim et al., 2022; Sabri et al., 2023), most of the research accounts are about young people, gained through more impersonal methods like questionnaires or surveys. Actual research that is conducted with young people as active participants in the research process is absent. Andersen (2021) and Param (2021) are perhaps part of a limited tome of research where Asian youth voice is not only captured but expressed in ways that speak of their own independent worldviews. With the increase of age-based studies in global academic narratives (Qvortup, 2005), involving the voice of Malaysian young people in local research should be essential so that nation-based research can maintain its contemporary relevance.

Living in a highly urbanized environment where the physical environment is now digitalised, young people face challenges that are different from previous generations. The reworkings of personal values, family relationships, and educational pathways are now grasped through tech-savvy approaches. Digital technologies have changed how adolescents learn, work, play and socialise (Bibizadeh et al., 2023). Digital literacy, with its 'multi-literacies' nature requires a combination of skills and knowledge in order to be used (Ahsan, Ayub & Azman, 2021). Digital literacy is part of the "new social media" which enables new possibilities and creates "new identities" (Polson, 2011, p. 144). Be it education, family relationships, or quotidian lifestyle choices, young people are shaped by the 'quick and easy' digitalisation of city life.

This paper is an attempt to engage with young people in the form of undergraduate students and put aside more traditional research methods, suggesting a contemporary approach to using a digital medium to obtain multimodal data. Acting as a pilot study, this paper looks at capturing the voices of Malaysian young people through the conceptual prompt of 'academic aspirations', using a digital platform called ArcGIS StoryMaps.

## **BACKGROUND OF STUDY**

### **The Digital Research Gap**

Some of the most commonly used methods of gathering data during the qualitative research of the social field are observation, document analysis, interview, focus group, and case study (Bumbuc, 2016). While these methods have been tried and tested over the years, the present-day context of young people like university students requires a more robust approach to doing research with them. This situation can be likened to the need for educators to be adequately aware of new and multi-layered ways that existing material can be read in relation to the construction of meaning (Rajandram, 2020). This research therefore hopes to explore if new digital ways can be used to contribute to the existing qualitative gap. In the need to move forward from older ways, will this different and dynamic endeavour be able to provide conclusive results that are research-worthy?

### **ArcGIS StoryMaps**

ArcGIS StoryMaps is the research tool that is explored in this paper. In context, story maps as a device can provide a structural outline of interactive, multimodal narratives (Sacre, 2023). Story mapping as a research technique incorporates the building of visual narratives based on the compilation of individual and/or collective experiences. According to Caquard and Cartwright (2014), mental maps, oral histories, cartography, plots of stories, and geographic information systems are some of the many ways in which people express themselves, and which should be captured for research purposes. When it comes to the enhanced use of digital story mapping, the representation of spatial, visual, and textual information can be synthesized as one narrative. Through this endeavour, meaningful participation of research participants is also enabled, apart from possessing a visually compelling product that facilitates dissemination (Molden, 2020).

The ArcGIS StoryMaps allows students to identify the sense of space or place through its interactive map maker. Through its use, "relations between young people, place and identity" (Hopkins, 2010, p. 173) can then be understood at a whole new digital level. As spatial thinking is increasingly adopted in the non-traditional Geographic Information Systems (GIS) domains, students are able to acquire new perspectives on both the historical and geographical elements of their society. This spatial component in the ArcGIS StoryMaps tool enables students to understand the relationship between man-made infrastructure and nature (Saladin, 2019), thus enriching the understanding of space and place in contemporary terms. Through the use digital story maps, exploring students' academic 'aspirations' is then chosen for the purpose of this pilot study.

### **Youth Aspirations**

The concept 'aspirations' as used in this paper is based on Arjun Appadurai's discourse of the future where he critiques narratives that only present biased accounts of the past. Appadurai's view of humans as future-oriented beings is the reason why young people and their aspirations are juxtaposed in this study. This connection is also validated by the fact that young people are generationally the best "future-makers" of societal change, with their

whole lives ahead of them (Appadurai, 2013, p. 285). Appadurai's concept of 'aspirations' includes zooming in on individuals' perspectives, which form maps to navigate the future; what he defines as "feasible maps for the future" (Appadurai, 2013, p. 288). The purpose of this paper is then to coax university students to express themselves using story maps, while defining their academic aspirations. Enabling young people to express themselves subjectively through the use of multimodal digital story mapping will be a first, as using this digital platform to glean qualitative data is both new and untested.

## METHOD

The study of young people (university students) and their ability to express their aspirations through a digital tool (ArcGIS StoryMaps) is the exploratory gap that this study hopes to fill. A multimodal discourse analysis is attempted.

### The Research Setting

In their research on qualitative data, Warren et al. (2003) refer to ironic situations where research respondents tended to be more open and relaxed after the actual research process was over. Swain and King (2022) also mention how researchers struggle to capture the relaxed and real voices of research participants which may only happen after the formal research process is over. These contexts can be likened to doing research with young people. Based on their younger age, students will most likely tend to relax and talk more in non-formal settings rather than formal settings. The researchers of this paper, who are also the academic and technical facilitators of this project, acknowledge the casual approach taken in giving the students the brief of the project, and how they should work on the project in groups. Through this informal approach, it was also found that students were more relaxed to discuss their digital ideas in groups, carrying out their multi-modal research projects with more intent. This observation is again in line with research that states that young people express themselves more through informal digital conversations and casual tech-based settings (Bibizadeh et al., 2023; Swain & King, 2022).

The research setting is a classroom-based project assessment, undertaken by university students at a local private university. These undergraduates are studying a compulsory subject called 'Sustainable Development in Malaysia', which is part of the *matapelajaran umum* (MPU) or general subject category in the National University curriculum (Kementerian Pendidikan Tinggi, 2016). The major assignment of the 'Sustainable Development in Malaysia' (MPU) subject is that students have to choose a specific issue in a specific geographical area within Malaysia, and then identify one of the SDGs that can be implemented in that area. Students need to explain their understanding of this chosen issue, showcasing how the problem exists, and how it is then solved, framed within an understanding of SDGs. Students need to work in groups of three or four and produce their compiled work through an interactive digital report. Through the guidance of weekly tutorials, students are required to conduct the necessary research for their selected locale / SDG and develop story maps to host the contents of their research.

At the end of the project, the groups will present their story map project to the class where they will receive feedback to further improve. The assessment key of this project is based on the student's ability to problematise the selected SDG in a localised context using a narrative approach. For this pilot study, the researchers' analysis of the students' 'aspirations' is parallel to the analysis found in the marking key; how students value the SDG of their choice, and how they aspire for tangible change to come about in their problematised area. The reason the researchers chose to base their analysis of 'student aspiration' on the rubrics used in this course is so that the pilot study would parallel the curriculum, without having to reinvent the wheel. In other words, the process that students take to work on their selected SDG using ArcGIS StudyMaps as an MPU subject matter is the same way the researchers intend to analyse their work from the definition of evidencing 'aspiration'.

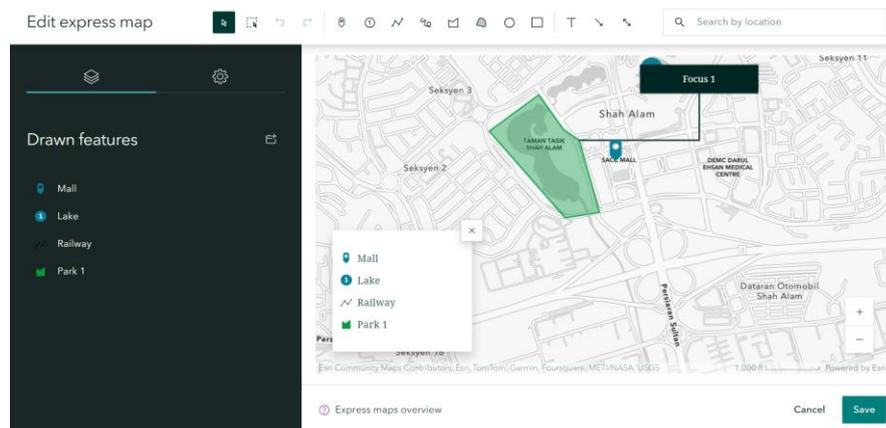
The participants in this research are first-year university students in the January 2022 semester, mostly within the age range of 19 to 22; a cohort "located uncomfortably between – yet simultaneously overlapping – childhood and adulthood" (Hopkins, 2010, p. 3). The chosen group projects discuss sustainability through education (SDG 4), cities and communities (SDG 11), and clean water (SDG 6).

### Instrumentation: ArcGIS Story Maps

Story maps are useful when doing research with young people (West & Horswell, 2018). Unlike linear approaches that older adults may prefer, young people are more inclined to styles that are fluid, multi-modal, and creative (Scarlett et al., 2019). According to Smith et al. (2011), research has found that multimodal composition is suitable for young people because it is engaging, collaborative, flexible, and encourages creative non-linear processes. Shahzadi and Surif (2023) refer to the power of new literacies that enable adolescents to make and share meanings in ways that are relevant to them compared to simpler communication tools in the past. Digitalisation and Web applications are part of the normative trends which young people have grown up with.

Since Story Maps is collaborative and cloud-based, there is no need to download any software to use it effectively. Thus, to qualitatively capture these young people's aspirations, the digital tool called ArcGIS StoryMaps was used. ArcGIS StoryMaps is a digital storytelling platform provided by a leading Geographic Information Systems (GIS) provider, ESRI in 2010, and renamed to ArcGIS StoryMaps in 2019 (ESRI, 2022). ArcGIS StoryMaps allows the user to bring together thematic maps with a narrative through an interactive, media-rich and engaging presentation format (West & Horswell, 2018). A user can create simple maps, design content flow in accordance with user needs, determine background colours, identify the visibility levels for the story maps and to leverage the platform for stakeholder briefings. While ArcGIS StoryMaps have been utilized for many purposes, this paper is based on studies of StoryMaps being incorporated as an assignment for students.

StoryMaps allow for multiple enhancements that enable the story to emerge with more detail, depth and significance, via the mapping technology, the content enhancement, and the review process. On this platform, there are four major templates for story building. The user can choose which to use, and this will determine the position of text, layout and emphasis of the media in the storytelling building. Users have the choice to use basic options or they can enhance their usage through the immersive options. However, one of the major features of StoryMaps is the incorporation of maps. The simpler option of express maps allows non-technical users to develop maps with ease and these maps provide context to the storytelling. Express maps have options ranging from satellite imagery to newspaper style background which users can use to complement the map building process. These configurations enable interactivity and this includes map navigation where users can search for a current location. This visual element is the one most students enjoy using, as it contextualises the exact location they are researching on.



**Figure 1:** Example of Express Map in ArcGIS StoryMaps

Note: Adapted from Express Map editor of ArcGIS StoryMaps platform

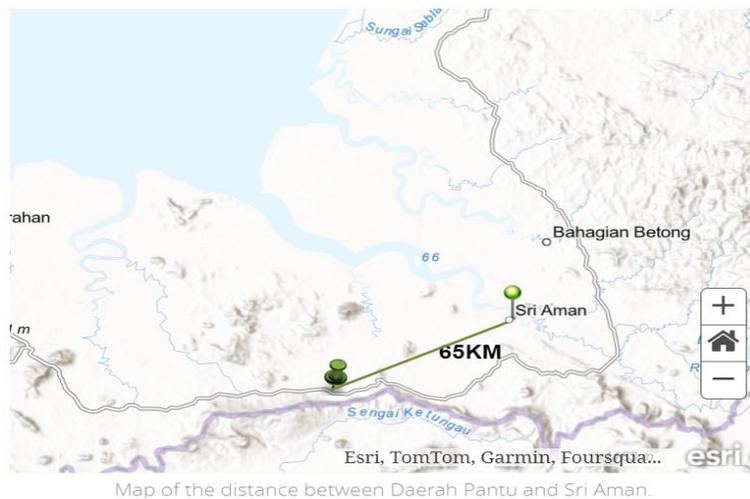
These elements make StoryMaps a preferred choice in self-expression for young people. Unlike the more traditional forms of research where individuals need to be coaxed to answer questions or fill out survey forms, the undergraduates in this research are active participants who can express their aspirations in a creative, multi-modal, user-friendly interface (Cope & Kalantzis, 2020). The use of visual literacies enables research participants' expressions to be creative; increasing the nuanced depth of what they want to say in words. In including story maps into qualitative research, the need to interpret visual practices in specific sociocultural contexts is required (Elkins, 2007).

## RESULTS & ANALYSIS

The clear rubrics of this project helped the researchers to operationalise the concept of aspirations in the students' work. Student aspirations were identified through three elements; visual practices, the practice of reflexivity, and the evidence of a strong narrative. The first element of visual practices is the most uncommon to generic qualitative research which only looks at written words. However, being able to interpret data with a visual lens is necessary when using ArcGIS StoryMaps, and this is part of the 'new' approach to exploring digital platforms for qualitative research. Three projects are chosen for the pilot study. In order to identify each, the geographical location of the research is chosen, and labelled in bold as Pantu, SS15 and Kota K respectively.

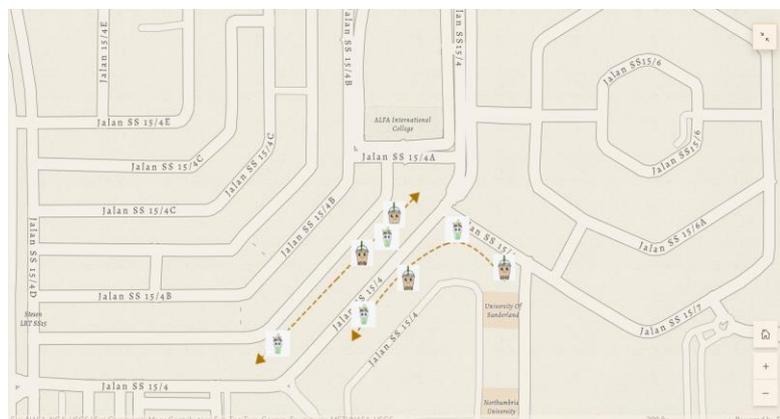
**Visual practices**

Visual texts are also able to facilitate the dissemination of individual or societal expression (Molden, 2020). The ability to read visual texts together with written ones is needed more and more as multi-modality is seen as the new way of compiling individual or collective responses (Caquard & Cartwright, 2014). The Pantu project is based on Education (SDG 4), referring to a rural area called Pantu in Sarawak. The students used the ‘Start from Scratch’ model to showcase how Pantu had only one secondary school. Sri Aman, the closest town, had many secondary schools but the Pantu-based schoolchildren could not go there as Sri Aman was 65km away. The students employed maps to convey the vastness of Pantu District and the geographical distances of schools. The simplicity of StoryMaps application allowed the students to develop quick maps within a short time frame.



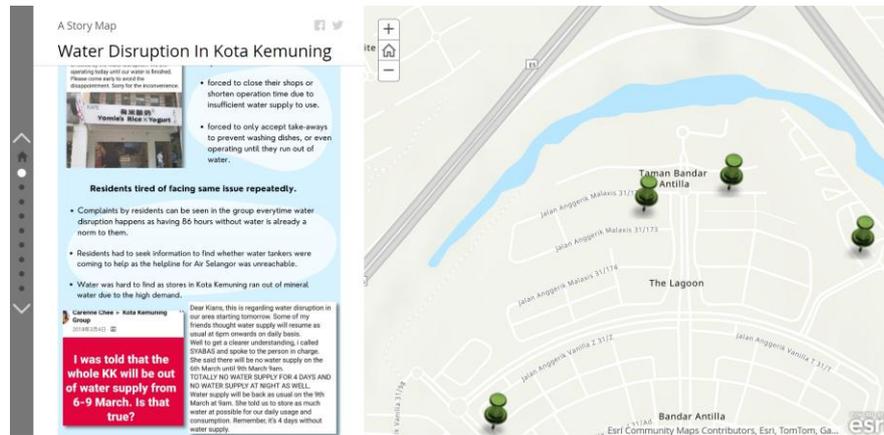
**Figure 2:** Express Map used to communicate the distance from Pantu and Sri Aman  
 Note: Adapted From “Is Education a Necessity for Daerah Pantu Community?”  
 (Wong, Ng, & Yap, 2022)

The SS15 project is based on Sustainable Cities and Communities (SDG 11) where the students highlight the overuse of plastic in bubble tea outlets. Students gave evidence that SS15 is called the ‘Bubble Tea Street’, since there are so many bubble tea shops and booths along the same street. Leveraging the technical use of SideCar to communicate this issue, the students showcase numerous visuals that graphically prove how an overdose of plastic containers is discarded as waste. For this project, students demonstrated creativity where they used their own custom symbols and photos to highlight the distribution of bubble tea outlets. This project maximised the power of visuals (Joffe, 2008) to effectively depict the idea of plastic wastage resulting from the convenience of ‘on the go’ beverage consumption. The visual enhanced the written message.



**Figure 3:** Express Map utilized to communicate locations of bubble tea stores in SS15  
 Note: Adapted from “SS15 Bubble Tea Street & the Plastic Waste”  
 (Chan, Joseph, Sooryaloshana, 2022)

The Kota K project is based on Clean Water and Sanitation (SDG 6) and refers to the constant water disruptions in the Kota Kemuning district. The students in this project took pains to identify the frequency of the water disruptions by identifying the four Selangor Water Treatment plants, the usage of social media responses from the public, and the role of SPAN (National Water Service Commission). Strong visuals were also used including organisational roles, a YouTube video and a graphic of unhappy residents collecting water from a truck. The students of this project have demonstrated their capability to leverage multiple forms of media to facilitate readers to learn the deeper about water disruptions. Although the students opted for a combination of screenshots and simple maps for their application, the effect of the story was still powerful.



**Figure 4:** This combines map and text to provide context of water disruption that took place in Kota Kemuning  
 Note: Adapted from “Water Disruption in Kota Kemuning”  
 (Tan, Khor, Lim, 2022)

These visual images help identify the area the students intend to study. More than the initial identification, the visual practice is given ‘life’ through the enabling features that enhance the importance of that locality. Through the use of photos, students can stake and frame the area they are focusing on, which lends weight to their aspirations.

**Reflexivity**

Reflexivity generally refers to the examination of one’s own beliefs, judgments and practices during the research or study process, and how these may have enhanced their work (Finlay, 1998). Student positionality about their research topic and how they demonstrate the depth of their knowledge through persuasive or emotive content has been identified as reflexive practices or reflexivity. Evidence of reflexivity in their StoryMaps projects is used to measure their academic aspirations.

In the Pantu project, students took time to ask pertinent rhetorical questions: “Are they really poor? What does survival mean to them?” (Wong, Ng, & Yap, 2022, Is Education A Necessity in Daerah Pantu? para. 2). Before the students focused on the lack of educational resources in this locale, they first needed to question the issue of poverty, and what it means to be “really poor” (Wong, Ng, & Yap, 2022, Is Education A Necessity in Daerah Pantu? para. 2). They had to reflect on whether their chosen community were experiencing subsistence poverty or absolute poverty. They had to reflect on ‘how’; whether the Pantu community “make their life sustainable without a stable income” (Wong, Ng, & Yap, 2022, Is Education A Necessity in Daerah Pantu? para. 3). The students’ research enables them to discover that “animal husbandry” and “planting vegetables” gained from the ancestors are the survival skills that have maintained the existence of the Pantu society (Wong, Ng, & Yap, 2022, Is Education A Necessity in Daerah Pantu? para. 3). These basic elements of sustainability have to be reflected on first before they can address the core issue of their project, “The real question is, why is education so important?” (Wong, Ng & Yap, 2022, Is Education a Necessity in Daerah Pantu? para. 5).

The use of this technique of reflexivity reveals the students’ strong intent in this area of sustainability, and this speaks of their academic aspirations. Students in the SS15 project also took time to ask essential rhetorical questions:

“Have you ever just randomly disposed of your plastic cup after enjoying your favourite cup of bubble tea? Do you by any chance feel some sort of guilt by tossing these plastic cups or straws on the sidewalks, after? Have you ever wondered, ‘How does purchasing one measly cup of delightful bubble milk tea, gravely impact the environment?’” (Chan, Joseph, & Sooryaloshana, 2022, Introduction, para. 1). By getting the readers to think about their everyday actions, the students are unconsciously including readers in the purpose of their project. “Your favourite cup of bubble tea” (Chan, Joseph, & Sooryaloshana, 2022, Introduction, para. 1) is used to draw the readers’ attention to their own daily preference for a drink. This technique is effective as the readers are then drawn into the discussion of sustainability – “how does [this]...gravely impact the environment?” (Chan, Joseph, & Sooryaloshana, 2022, Introduction, para. 1). The purposeful use of rhetorical questions helps to contextualise the positioning of the research. This reveals the students’ deeper thinking processes that speak of their aspirations.

In the Kota K project, reflexivity was not seen through the use of rhetorical questions; but rather, through short bites of information gleaned from various sources. Pertaining to the water shortage issue in Kota Kemuning, students took the time to include alternate and localised views that in their opinion are more relevant than generic information from the internet. Information from a Facebook page was quoted, where shops had to shorten their service time, or where restaurants could only offer takeaway meals instead of dine-ins, both due to insufficient water supply. They provided sources of how “the helpline to Air Selangor (the main water services provider) was unreachable” and how “stores ran out of mineral water due to the high demand” (Chan, Joseph, & Sooryaloshana, 2022, Community Living in Kota Kemuning, para. 7). These multiple sources of information are the outcome of the group’s reflective practices; how sourcing various pieces of information showcase their strong cause of water shortage. References to local incidents also speak of the students’ initiative to not settle for global experts’ opinions, as the latter is the usual reference point for environmental causes. The efforts of ‘going local’ add depth to the cause of water shortage in the specific area of Kota Kemuning, thus affirming student aspirations.

### **A Strong Narrative**

A narrative is an account that tells the whole story, with a delineation of details. Through the use of story maps, young people enjoy creating narratives that are fluid, multi-modal and creative (Scarlett et. al., 2019). In the Pantu project, the project narrative uses detailed information to evidence the need for SDG no. 4 (Education) in this area:

“While there are no adequate statistics of children dropping out from school in Pantu, it is clear that children in the community are lacking education due to the lack of secondary school and the non-existence of higher education institutions in the area” (Wong, Ng, & Yap, 2022, The Lack of Institutions in Daerah Pantu, Sarawak, para. 7). This reference is made after careful calculations on the distances between Daerah Pantu and Sri Aman, and background research on the number and type of schools in this area. The project team found that there were no proper roads in this area – “the road issue is also a concern for members of the community who want to pursue their education” (Wong, Ng, & Yap, 2022, The Lack of Institutions in Daerah Pantu, Sarawak, para. 7). Apart from the input of historical and geographical information, interviews with NGO (non-government organisation) workers also establish the fact of the lack of sustainable education here. The students advocate for change through a detailed account of the situation and what can be done to improve it. Actual experience which is recorded, details on B40 households, and live links for readers to get more information on vulnerable children are part of a conclusive narrative to convince readers and motivate them toward action. Apt quotes like “Education may not be a necessity to the community of Daerah Pantu but the opportunity of education should be necessary” (Wong, Ng, & Yap, 2022, Conclusion, para. 6) are effective in tying up the story, giving the narrative a strong finish.

In the SS15 project, the entire storyboard is telling of a strong narrative. The students talk about how “the operation of these bubble tea shops is beneficial” and yet how “people fail to realise the environmental impact of the plastic waste produced by these beverages” (Chan, Joseph, & Sooryaloshana, 2022, Introduction, para. 4). Reference to “this sustainable journey on halting single-use plastic” (Chan, Joseph, & Sooryaloshana, 2022, Conclusion, para. 2) is made through the inclusion of creative photographs together with powerful statements that evidence “the irresponsibility of certain individuals who continue to litter their plastic cups everywhere, disregarding the environment...” (Chan, Joseph, & Sooryaloshana, 2022, Understanding the Problem, para. 1). The students strengthened their narrative by mentioning how take-away drinks that were first ordered during COVID-19 lockdowns now continue to dominate consumer behaviour – where “with just a tap of a finger, one can enjoy the milky goodness that bubble tea offers in the comfort of their homes” (Chan, Joseph, & Sooryaloshana, 2022, Understanding the Problem, para. 2). An online survey with some of the local residents of SS15 was included, asking their opinion on how SDG 11 (sustainable cities and communities) could be achieved locally. Strategies to overcome plastic waste is not only targeted to “authorities such as MBSJ” (Chan, Joseph & Sooryaloshana, 2022,

Understanding the Problem, para. 3), but also to consumers and bubble tea vendors. The latter “are a massive contributor, as they are unwilling to change their packaging to more sustainable ones or encourage the consumers to be more mindful of their waste” (Chan, Joseph & Sooryaloshana, 2022, Understanding the Problem, para. 3). By pointing to the responsible parties, the students clearly outline what the problem is, and how it can begin to be solved. The students’ strong engagement in this cause is exhibited by their strong narrative. In the Kota K project, the strong message to overcome clean water shortage is highlighted through “unlicensed factory dumping” (Tan, Khor, & Lim, 2022). Promoting SDG no. 6 (Clean Water and Sanitation), factory pollution cases and whistle-blowing procedures are highlighted; where even though actual names are withheld for privacy, dates and case details were clearly outlined. Students took the effort to research LUAS (Lembaga Urus Air Selangor), a statutory organisation under the state government, and explore how its position could help manage the quality of water. Details of raw water resources like rivers and ponds were also delineated, showcasing a strong narrative of all possible forms of action that could be taken to alleviate this problem. Although their written words were more styled than infographics, the intent was very clearly demonstrated. For example, Figures 5 and 6 showcase how vital information is recorded not in long sentences, but effectively through bullet points and infographics. The effective inclusion of a video and an actual photograph displaying the inconvenience of water shortage helps readers understand how important water is for society’s daily life. Graphics, photographs, colours, moving images and short sentences are compiled creatively to create a powerful multi-modal that depicts the students’ intent. This reveals the students’ efforts in creating a strong narrative.



**Figure 5:** StoryMaps application incorporating two forms of visuals (YouTube Video and infographic) for the Water Disruption in Kota Kemuning project  
 Note: Adapted from “Water Disruption in Kota Kemuning” (Tan, Khor, & Lim, 2022)



**Figure 6:** Storymaps application for Water Disruption in Kota Kemuning project  
 Combining infographic with photo relating to the impact of water disruption  
 Note: Adapted from “Water Disruption in Kota Kemuning” (Tan, Khor, & Lim, 2022)

## DISCUSSION

The findings evidence the students' aspirations for sustainable change. Through visual practices, the practice of reflexivity, and the display of a strong narrative, students reveal their conscious intent in facing the problem of sustainability at hand and having deeper considerations on how to overcome the limitations. The researchers of this pilot study have used the same marking key framework of the MPU course to analyse the students' aspirations, where multiliteracies are accepted.

Throughout the process, ArcGIS StoryMaps is viewed as an effective platform to communicate student aspirations. Through the engaging content that is produced, students' multi-modal expressions could be captured more effectively, thus reinforcing their aspirations to tackle SDG issues in Malaysia. The students' careful deliberation to present a full storyline, delineating both the problem and the possible solutions speak of their aspirations as "politically feasible maps for the future" (Appadurai, 2013, p. 288). Of the three projects, the Kota K project is the one that carries the most visual substance. While aspirations in this project are equally evident as the other two projects, future researchers using this digital tool will have to consider the acceptable levels of visuals versus written words in their qualitative research framework.

Without intending to digress from the scope of the exploratory findings of this paper, this pilot study has created an appetite in the researchers' inclinations to suggest how a multi-modal platform in the education system could directly increase student participation and engagement with their coursework. This is because there were other skills evidenced which the students demonstrated in the process of creating their story maps. Skills to be creative, independent and self-navigating, and to be a team player who can work collectively were some of the other skills identified. Perhaps multi-modal considerations should be included in the existing rubric of "categories" that measure the processes of "transformation" in higher education institutions (Shariffuddin et al., 2017, p. 133).

Despite the 'success' that this pilot study has resulted in, the biggest issue of discussion concerning this pilot study is whether we can use AI-assisted digital tools for the future of qualitative research. Is ArcGIS StoryMaps a contemporary enhancement that should be considered, especially for the younger generations who like to formulate their self-expression through digital means? Or is this tool a red herring that looks attractive and promising, but is a distraction from qualitative work? This is an area which the experts have to decide. Just like how the medical field decided to include subjective narrative inquiry into their scientific research methodology (Karpa, 2021; Wang & Geale, 2015), change within the qualitative research circle needs to consider the use of digital methods in gaining qualitative data. Studying the rubrics of newer methods and tools is inevitable.

## LIMITATION OF STUDY

As a pilot study, this research is only preliminary. The researchers were able to enjoy the convenience of using student samples from a university MPU course. However, if the use of ARcGIS StoryMaps is ever considered for full-fledged research, the rubrics for its use need to be clearer and tighter. This would then enable the method to be reliable.

## CONCLUSION

This paper has examined urban youth aspirations in line with what university students intend to achieve through a lens of sustainable development. Their status as young people often leaves them othered in age-based narratives; where adultism is referred to as the mainstream. However, as this research shows, including youth voices is pivotal, and qualitative methodology must enlarge its framework to include new tools and approaches. The findings reveal great potential for using story maps to do research with young people. This is because the ArcGIS StoryMaps platform, for example, offers many possibilities for users to engage with, and digital self-expression is common to young users, especially in urban contexts. Since voice, story, and narration are intrinsic elements of qualitative research, digital means that capture these elements should also be harnessed for analysis (ESRI, 2022).

## RECOMMENDATIONS TO THE STUDY

The challenge for qualitative researchers is two-fold; employing new digital means to analyse data, and to be able to relate to the ever-changing disposition of young people in the urban world. Although this is only an exploratory study, it is recommended that gaining knowledge through new digital means of collecting and analysing data be part of qualitative researchers' learning curve to be better researchers. The initial step suggested would be to develop an academic eye for the reading of multi-modal texts as qualitative data. Young people need to be treated

as research ‘participants’ and not just as research ‘respondents’. It is thus recommended that power dynamics need to be eliminated so that young people can have a safe space to express themselves. The presence of this age group in research frameworks needs to be increased, so that young people can be seen as “future-makers” (Appadurai, 2013, p. 285).

### IMPLICATION OF STUDY

Young people’s ‘aspirations’ are complex understandings of future pathways that can be likened to reading “a map of a journey into the future” (Appadurai, 2004, p. 76). The ArcGIS StoryMaps has shown to be a potentially powerful research tool that can creatively and effectively capture youth voices and their aspirations in qualitative settings. This is in line with qualitative research moving forward, both in approach and in method. This surely needs further exploration.

### AUTHOR CONTRIBUTION

The analysis of the data and writing up of the paper was done by SAP while DPC conducted the ARcGIS technical write up and formatting edits.

### ACKNOWLEDGMENT

The authors would like to express their gratitude to Professor Leong Choon Heng, who first introduced the use of ARcGIS StoryMaps in the aforementioned MPU course. The authors would also like to express gratitude to the participants who took part in this study.

### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest. All co-authors have reviewed and approved the manuscript, and there are no financial interests to disclose.

### DECLARATION OF STATEMENT

The lead author confirms the manuscript’s integrity, stating that it provides an honest, accurate and transparent account of the reported study. No crucial aspects of the study have been omitted, and any discrepancies from the planned (and, if applicable, registered) study have been appropriately explained.

### REFERENCES

- Ahsan, M. H., Ayub, N., & Azman, N. S. (2021). Digital Literacy in Malaysia: A Systematic Literature Review on Methodological Approaches. *Malaysian Journal of Qualitative Research*, 24, 7(1), 107–125. <https://research.ebsco.com/linkprocessor/plink?id=ccdebbb2-f568-3591-8538-94068bf743ca>
- Andersen, M.K. (2021). Law Students, Aspirations and Accomplishments in Colombo, Sri Lanka, in Westendorp, M., Rimmert, D. & Finis, K. (Eds.), *Aspirations of Young Adults in Urban Asia* (pp. 130–149). Berghahn.
- Appadurai, A. (2004). The Capacity to Aspire: Culture and the Terms of Recognition, in R. Vijayendra & W. Michael (Eds.), *Culture and Public Action* (pp. 59–84). Stanford University Press.
- Appadurai, A. (2013). *The Future as Cultural Fact: Essays on the Global Condition*. Verso.
- Beazley, H., Bessel, S., Ennew, J & Waterson, R. (2009). The Right to Be Properly Researched: Research with Children in a Messy, Real World. *Children’s Geographies*, 74(4), 365-378. <http://dx.doi.org/10.1080/14733280903234428>
- Bibizadeh, R. E., Procter, R., Girvan, C., Webb, H., & Jirotko, M. (2023). Digitally Un/Free: the everyday impact of social media on the lives of young people. *Learning, Media and Technology*, 1–14. <https://doi.org/10.1080/17439884.2023.2237883>
- Bumbuc, S. (2016). About subjectivity in qualitative data interpretation. *International Conference Knowledge Based Organization*, 22(2), 419–424. <https://doi.org/10.1515/kbo-2016-0072>
- Caquard, S., & Cartwright, W. (2014). Narrative cartography: From mapping stories to the narrative of maps and mapping. *The Cartographic Journal*, 51(2), 101–106. <https://doi.org/10.1179/0008704114z.000000000130>
- Chan, J. E., Joseph, N., & Sooryaloshana. (2022, February 23). SS15 Bubble Tea Street & The Plastic Waste produced. ArcGIS StoryMaps. <https://storymaps.arcgis.com/stories/209b49fafca847419490c934843675cd>
- Cope, B. & Kalantzis, M. (2020). *Making Sense: Reference, Agency, and Structure in a Grammar of Multimodal Meaning*. Cambridge University Press.
- Elkins, J. (2007). *Visual Practices across the University*. Fink Wilhelm GmbH
- ESRI. (2022). *The next generation of storytelling | ArcGIS StoryMaps Timeline*. ESRI.com.

- <https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/classic>
- Finlay, L. (1998). Reflexivity: an essential component for all research? *British Journal of Occupational Therapy*, 61(10), 453-456.
- Hopkins, P. (2010). *Young People, Place and Identity* (1st ed.). Routledge.
- Ibrahim, M. F., Wan Ismail, W. S., Nik Jaafar, N. R., Mohd Mokhtaruddin, U. K., Ong, H. Y., Abu Bakar, N. H., & Mohd Salleh Sahimi, H. (2022). Depression and Its Association With Self-Esteem and Lifestyle Factors Among School-Going Adolescents in Kuala Lumpur, Malaysia. *Front. Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.913067>
- Joffe, H. (2008). The Power of Visual Material: Persuasion, Emotion and Identification. *Diogenes*, 55(1), 84–93. <https://doi.org/10.1177/0392192107087919>
- Karpa, J. V. (2021). Narrative inquiry methodology and family research: An innovative approach to understanding acquired brain injuries. *International Journal of Qualitative Methods*, 20. <https://doi.org/10.1177/16094069211021725>
- Kennedy, H.K. (2019). *Disrupting Adulthood: Practices That Enable or Constrain Intergroup Contact Between Youth and Adults*. [Doctoral Dissertation, University of Denver]. Digital Commons @ DU. <https://digitalcommons.du.edu/etd/1667>
- Kementerian Pendidikan Tinggi. (2016). *Garis Panduan Mata Pelajaran Pengajian Umum (MPU) Kedua*. <https://drive.google.com/file/d/1cm1AoWmCa5LM9hFtEpzIIDWQbYzMiwg0/view?pli=1>
- Molden, O. C. (2020). Short Take: Story-mapping Experiences. *Field Methods*, 32(2), 131-139. <https://doi.org/10.1177/1525822X19877381>
- Param, S. (2021). The Imaginations of Talking Back, in Westendorp, M., Remmert, D. & Finis, K. (Eds.), *Aspirations of Young Adults in Urban Asia* (pp. 109–129). Berghahn.
- Qvortrup, J. (2005). *Varieties of Childhood in Jens Qvortrup (Ed.), Studies in Modern Childhood: Society, Agency, Culture* (pp. 1–20). Palgrave Macmillan.
- Polson, E. (2011). Belonging to the Network Society: Social Media and the Production of a New Global Middle Class. *Communication, Culture and Critique*, 4(2), 144–163. <https://doi.org/10.1111/j.1753-9137.2011.01099.x>
- Rajandram, K. V. (2020). Reading and Studying Literature in English: Facilitating the Educator through Netnography, *Malaysian Journal of Qualitative Research*, 6(2), 5-20. [https://seap.taylors.edu.my/file/rems/publication/104729\\_8019\\_1.pdf](https://seap.taylors.edu.my/file/rems/publication/104729_8019_1.pdf)
- Sabri, M.F, Wahab, R., Mahdzan, N.S., Magli, A.S., Rahim, H.A., Ahmad Suhaimi, S.S., Nazuri, N.S. (2023). An enigma of Malaysia's low-income young adults: Mediation of financial behaviour on financial well-being and locus of control cohesion. *PLOS ONE* 18(7), e0288204. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0288204>
- Sacre, A. (2023, September 18). Unleashing Creativity: Crafting Compelling Story Maps in Education. *Voyager Sopris Learning*. <https://www.voyagersopris.com/vsl/blog/unleashing-creativity-crafting-compelling-story-maps-in-education>
- Saladin, C. (2019). Story Maps Help Humanities Students Develop Spatial Perspectives. ESRI.com. [https://www.esri.com/about/newsroom/arcuser/teaching-with-story-maps/Scarlett, S. F., Lafreniere, D., Trepal, D. J., Arnold, J. D. M., & Xie, Y. \(2019\). Out of the Classroom and Into History: Mobile Historical GIS and Community-Engaged Teaching. \*The History Teacher\*, 53\(1\), 11-35. <https://www.jstor.org/stable/27058561>](https://www.esri.com/about/newsroom/arcuser/teaching-with-story-maps/Scarlett, S. F., Lafreniere, D., Trepal, D. J., Arnold, J. D. M., & Xie, Y. (2019). Out of the Classroom and Into History: Mobile Historical GIS and Community-Engaged Teaching. The History Teacher, 53(1), 11-35. https://www.jstor.org/stable/27058561)
- Shahzadi, N. & Surif, J. (2023). New literacies: Multimodal and social orientation of 'new' in secondary science classrooms. *Cogent Education*, 10(2), <https://doi.org/10.1080/2331186X.2023.2245982>
- Shariffuddin. S.A., Razali, J.R., Ghani, M.A, Shaaidi, W.N., & Ibrahim, I.S. (2017). Transformation of Higher Education Institutions in Malaysia: A Review. *Journal of Global Business and Social Entrepreneurship*, 1(2), 126–136. [https://www.researchgate.net/publication/313468272\\_](https://www.researchgate.net/publication/313468272_)
- Smith, B., Tan, S., Podlasov, A. & O'Halloran, K. (2011). Analyzing multimodality in an interactive digital environment: Software as meta semiotic tool. *Social Semiotics*. 21(3), 359–380. <https://doi.org/10.1080/10350330.2011.564386>
- Swain, J. & King, B. (2022). Using Informal Conversations in Qualitative Research. *International Journal of Qualitative Methods*, 21, 1–10. <https://doi.org/10.1177/16094069221085056>
- Tan, J., Khor, L. Y., & Lim, M. (2022). *Water Disruption In Kota Kemuning. ArcGIS StoryMaps*. <https://www.arcgis.com/apps/MapJournal/index.html?appid=f498113512f2456da63b55916b28366a>
- United Nations. (2013). *DEFINITION OF YOUTH*. United Nations. <https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf>

- Van der Veer, P. (2015). *Handbook of Religion and the Asian City: Aspirations and Urbanization in the Twenty-First Century* (1st Ed.). University of California Press.
- Wang, C. C., & Geale, S. K. (2015). The power of story: Narrative inquiry as a methodology in nursing research. *International Journal of Nursing Sciences*, 2(2), 195-198. <https://doi.org/10.1016/j.ijnss.2015.04.014>
- Warren, C.A.B., Barnes-Brus, T., Burgess, H., Wiebold-Lippisch, L., Hackney, J., Harkness, G., Kennedy, V., Dingwall, R., Rosenblatt, P. C., Ryen, A., & Shuy, R. (2003). *After the interview*. *Qualitative Sociology*, 26, 93–110. <https://doi.org/10.1023/A:1021408121258>
- West, H., & Horswell, M. (2018). GIS has changed! Exploring the potential of ArcGIS Online. *Teaching Geography*, 43(1), 22-24. <https://www.jstor.org/stable/26455213>
- Westendorp, M., Remmert, D. & Finis, K. (2021). *Aspirations of Young Adults in Urban Asia*. Berghahn.
- Wong, W. S., Ng, P. K., & Yap, S. Y.M. (2022). Is Education A Necessity for Daerah Pantu Community? SDGs Today. <https://storymaps.arcgis.com/collections/8741d108db7f49c8a401f9c28aa43b3e?item=3>