

# Designing a Career Exploration Corner for Children with Less Access to Role Models

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**Abstract:** Aspiration is substantial in children's learning and career development. Unfortunately, the isolation of information in rural areas left the children with a narrow vision of future careers. Utilizing the combination of Information and Communication Technology (ICT) and analog learning methods, the project aims to broaden children's horizons and build a sense of connectedness between them and the world of work. Exploration components and delivery methods were designed and validated with schoolchildren aged 9 to 13 who live in Panglungan Village, Indonesia. Observation, survey, output analysis, and interview are combined to examine the impact of the learning components and the program's sustainability. The result shows that the learning component designed also help promote aspiration in children in rural area. The research also emphasizes the use of new media in non-formal learning like career exploration and the role of a learning center in rural areas.

## 1 INTRODUCTION

The question "what do you want to be when you grow up?" is often asked of children. The answer could be a job or the type of person they dream of in the future. This answer comes from the information they are exposed to up to that point. The information may come from the closest people in their household, the people they interact with daily, information from school, television, etc. While these childhood aspirations may not be the career they pursue when they are older, it is believed to correlate to how they perceive careers and impact their learning. Students with long-term goals are more engaged in learning because they feel it is a process to be someone they dream about and contribute something to the world (Dweck et al., 2014). This engagement in learning is also seen to positively influence achievement (Martins et al., 2021).

Widening children's awareness of the varieties of careers can open more possibilities for them and help them make better career decisions. Among many sources that children can get career information from, learning from the people in the working world may help broaden their horizons (Chambers et al., 2018). Learning directly from them could show the relevance of learning, bring a different point of view and break the stereotypes related to a certain job. However, children who live in rural areas are lacking exposure to a variety of career models as there are not that many

career examples available in the area. They also have fewer encounters with what "people like them" can be in their careers. This isolation of information may narrow children's vision of their future careers.

The existing efforts by the volunteers, in Indonesia for example, where work people from various backgrounds visit elementary schools in rural areas to share their profession with them (Inspirasi, 2016; Pulau, 2014), are faced with some limitations in mobility and access to the location (Bosma and Firdaus, 2017). This problem can be solved with Information and Communication Technology (ICT), as many research suggested (Chinapah and Odero, 2016; Pokorska, 2012; Ito et al., 2013). However, ICT solutions for education in rural communities are often discontinued because they are not designed based on local needs. It is suggested that ICT solutions in rural areas should empower the local people (Warsihna et al., 2013), combined with a network to the more extensive community outside of the locality (Lowe et al., 2019). Considering the infrastructure in the local area, figuring out the right balance between the utilization of technology and traditional learning method would be crucial in ensuring the learning operation.

This research aims to design a sustainable career exploration program for children with less access to role models to promote their aspirations. To deal with the disconnect between the world of work and children in rural areas, the exploration of learn-

ing components using immersive and analog media for schoolchildren children ages 9-13 or grades 4-6 of elementary school was conducted. The delivery method for sustainable practice in rural and disadvantaged areas was also explored. For this study, the design was experimented with children and the community in Panglungan Village, a mountain village in East Java, Indonesia. A combination of the quantitative and qualitative evaluation was used to validate the impact of the learning components in promoting aspirations and the efficiency of the delivery method.

## 2 LITERATURE REVIEW

### 2.1 Career Exploration for Elementary Schoolchildren

Career development programs often neglect the childhood stage, which is still far from the decision-making period. In recent years, more people have been interested in the importance of child career development (Watson and McMahon, 2016). It is suggested that at the elementary school level, the focus should be on raising aspirations and broadening horizons instead of career advice (Chambers, 2018). Gottfredson (1981) theorizes that the development of children’s aspirations between 9 to 13 years old is based on social valuation before evolving into unique personal characteristics in the next stage (Gottfredson, 1981). This stage is the ideal age for children to explore careers as a foundation of their career development before developing their unique selves.

<p><b>Competency 5:</b> Participate in lifelong learning supportive of career goals</p>	<ul style="list-style-type: none"> <li>• Develop an interest in learning</li> <li>• Discover the importance of learning and its contribution to life and work</li> </ul>
<p><b>Competency 6:</b> Locate and use career information effectively</p>	<ul style="list-style-type: none"> <li>• Develop awareness of learning through reading hardcopy and online materials</li> <li>• Understand what career information is</li> </ul>
<p><b>Competency 7:</b> Understand the relationship between work, society, and the economy</p>	<ul style="list-style-type: none"> <li>• Recognize that people work in paid and unpaid roles</li> <li>• Discover how work contributes to individuals’ lives</li> </ul>
<p><b>Competency 8:</b> Understand the changing nature of life and work roles</p>	<ul style="list-style-type: none"> <li>• Imagine life as an adult</li> <li>• Learn to recognize gendered life and work roles and to question their appropriateness</li> </ul>

Figure 1: Early phases of career management competencies in learning and work exploration area (Australia, 2010).

While “career” is closely related to paid jobs, it embodies a person’s life roles and journey (Hodgetts,

2009). Learning about someone’s career is not limited to knowing their current job description but includes their learning and journey up to that point. An Australian Blueprint for Career Development identified four competencies for learning and work exploration area (Australia, 2010). The competencies were designed in five developmental phases, where the Awareness and Exploring phases are the most suitable for elementary school children (Figure 1).

### 2.2 Combining Immersive Media and Traditional Learning Method

Among many learning methods, Kolb’s Experiential Learning Cycle (ELC), is an adaptive learning style that emphasizes active contribution from learner (McCarthy et al., 2016). This learning style is based on concrete experience, followed by reflective observation, abstract conceptualization, and active experimentation, where learners grasp and deconstruct experience to gain knowledge (Illeris, 2018). The implementation of ELC in virtual computer laboratories helped learners gain a deeper understanding of the subject matter (Konak et al., 2014). This study also promoted peer learning to facilitate the reflection and conceptualization stages of ELC. The application of Experiential Learning or Active Learning with a balance utilization of immersive and traditional media for children’s career exploration in rural areas is explored in this study.

#### 2.2.1 Immersive Learning Using 360 Video

Immersive media is beneficial in reintroducing some of the crucial tools that exist in the traditional educational space, like presence, immediacy, and immersion (Bronack, 2011). Immersive Virtual reality (IVR) as a learning source is believed to help develop re-engagement to content over time (Makransky and Petersen, 2021) and may also elicit a short-term state of wanting to know more (Knogler et al., 2015). Among many technologies categorized as immersive, 360° video is one of the more accessible technologies as a mobile device, and a 3-DoF device like Google Cardboard is sufficient to enjoy the experience. An example of the use of 360° video in a religious studies classroom resulted in students valuing the experience, stating that it helped them deepen their knowledge of religions and elicited feelings of empathy toward other religions (Johnson, 2018).

Creating a learning experience using storytelling in 360° video requires different techniques compared to the traditional two-dimensional (2D) video. Some problems that could occur when creating educational

videos in 360° video are related to the point of view (POV) and attention (Kavanagh et al., 2016). In a 360° camera, the lens position represents the viewer's eyes. The placement and actors' interaction with the camera could give the illusion of interaction (Elmezeny et al., 2018). Because the viewer can control their view, they might unintentionally lose track of the main information when exploring the spherical environment. It is suggested that having focused characters, a simple storyline, and using audiovisual direction cues can help direct viewers' attention (Elmezeny et al., 2018). But it is also emphasized not to overly restrict viewers' field of view to gain the full advantage of 360° video (Elmezeny et al., 2018).

### 2.2.2 Visual Journaling for Reflection Method

While immersive technology helps engagement in the learning content, reflection as a way to extract meaning from experience (Boud, 2001) could aid the comprehension process. Journaling is one of the practices that is often used as a reflective method in learning new material (Chang and Lin, 2014). Journaling is believed to help us look more closely at a subject and see things from an unexpected perspective (New, 2005). Furthermore, using it in its manual form encouraged students to be active learners and practice critical thinking (New, 2005; Hash, 2021). Similarly, a worldwide survey on primary school children's aspirations used drawing to draw information from the children (Chambers et al., 2018). Some of the reasons that the report mentioned are the ability to help children tell a better story, to encourage children who are usually shy, and to avoid intimidation from other people, especially teachers or adults.

### 2.2.3 Gamification in Children's Learning

To make learning more exciting for children, gamification, an approach using game features, is often used (Faiella and Ricciardi, 2015). It is recommended to use gamification in activities that include a repetition to elicit interest (Faiella and Ricciardi, 2015). Gamification in learning has been proven to benefit the learning outcomes from a cognitive, motivational, or behavioral perspective (Sailer and Homner, 2020). Among many game elements used in children's education, challenge, and achievement are some of the most popular and present within (Nand et al., 2019).

## 2.3 Learning Center in Rural Areas

While ICT solutions can help bridge children with the outside community, a physical center in the rural area is deemed necessary (Svendsen and Lind, 2009;

Svendsen, 2013). Considering the difference in learning supporting tools available in every household, a base or learning center that provides technology-based solutions could expand the inclusivity of learning opportunities for the local people (Sharma, 2014).

Among many places available in the rural areas, the technology-supported physical space for non-formal learning could be installed in existing Tele-center (Yasya, 2020), public spaces like public library (Svendsen, 2013), and mosque (Cheema et al., 2014), privately owned space like coffee shop (Afifah, 2021), and many other places depending on the characteristic of the village.

## 3 DESIGN

### 3.1 Target User

The main target of this research was children ages 9-13 or grades 4-6 of elementary school who live in areas with less access to role models. In these areas, the transition from elementary to middle school is often a crucial period for them to either continue school or directly join the workforce, making the time before this transition a critical period for intervention.

These areas usually have a homogenous community with the main livelihood coming from the direct use of natural resources like farming, fishery, mining, etc. Even though many rural areas are already provided with internet infrastructure, the stability and access are not evenly distributed to every household. Most children in these areas neither have individual gadgets nor many adults who can guide them in accessing the internet productively.

### 3.2 Career Exploration Design

The Career Exploration components were designed for children to explore various career journeys, see how they impact people's lives, and how the jobs can relate to their daily lives. Through the preliminary explorations with children in Pramuka Island, Indonesia (2017), Thien Binh Orphanage, Vietnam (2019), and Panglungan Village, Indonesia (2021), different combinations of components were implemented and evaluated in each exploration (Figure 2).

Choosing an interest is a very personal and repeated process. The preliminary design results show that individual exploration is the most efficient way for children to explore based on their interests. The children also enjoyed exploring the 360° environment, especially the working process part. However, verbal communication was not something they were

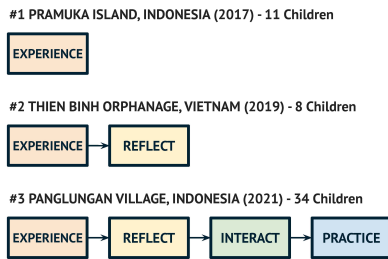


Figure 2: Exploration component design process.

comfortable with. The use of visual journaling and written communication may help the exploration process. Additionally, the children desired interaction with peers and their context, which was also deemed necessary to increase their engagement.

There are four components to the career exploration program. They are (1) Experience, (2) Reflect, (3) Interact, and (4) Practice. Below is the improved design of the components based on the lesson learned from the preliminary research.

### 3.2.1 Component 1: Experience

In the Experience component, children experience various people’s working lives in 360° video format. They choose one video content that they want to watch each time. For this research, 13 video content from five job categories were designed. The contents are compiled in a Padlet (Figure 3).



Figure 3: Contents provided for the Experience component.

The purpose of the video content is to give a workplace experience and tell an inspiring story of a real working person. The video is created in the first-person PoV around the workperson’s workplace, where the workperson and children drive the story as the main characters. Using audio and visual cues, the viewer may have a sense of interaction with the characters and environment in the video. The 7 to

10 minutes video contains one key point or statement that guides the story. Based on that key point, the story also includes (1) the career path of the workperson, (2) interesting working processes, (3) important skills, (4) the social impact or value of the job, and (5) an encouraging message from the workperson.

### 3.2.2 Component 2: Reflect

After watching the video, children internalize the experience. Initially, the reflection method was done verbally, which did not work. Instead, using a visual journaling method, children internalize their experience in two prompts (Figure 4). The prompt is a reflective drawing “If I were...”, where children imagine how it would look like if they had the same profession as the workperson. The second part is reflective writing “I should learn or do...”, where children contemplate the things that they can learn or do now to be like the workperson.

NAMA:	UMUR:	NO:
Jika aku menjadi seorang .....(nama pekerjaan)		
Seandainya aku ingin menjadi seperti ..... aku harus belajar/ melakukan .....		

Figure 4: Visual Journal template.

### 3.2.3 Component 3: Interact

Children interact with work people and peers through comment writing and verbal communication in this component. To the workperson, children write comments or questions related to the video content or the job. To their peers, they share their drawings from the Reflect component.

### 3.2.4 Component 4: Practice

The Practice component is when children exercise how skills from the job can be transferred into daily life. With the supervision of guardians at home, they do a practical challenge following the Mission Card.

Each Mission Card is designed based on the video content provided to the children. Each mission card contains the details of the video, instructions for the mission, an activity report column, and a reflection column (Figure 5). The recommended duration for each activity is around 2 hours across a 1-week time



frame. For every completed mission, they may receive a collectible reward.



Figure 5: Mission Card example.

### 3.3 Exploration Corner Design

To facilitate repeated exploration, children should have a space to return to. Considering the diverse availability of technology in every household, designing a learning center that provides all the equipment necessary for the exploration could ensure the inclusivity of the program. This learning center, which I call Exploration Corner, operates outside school hours, where children can do the Experience, Reflect, and Interact components with their peers. The module for these three components is designed for 20 minutes, two children at a time. Therefore, for every hour the Corner runs, it could accommodate 4-6 children. The corner is supported by an internet connection, facilitated by a volunteer, and provides all the equipment required for career exploration.

#### 3.3.1 Corner Facilitation

The facilitator is someone from the local community. The facilitator helps the children with the equipment and time management during the activity. The facilitator should provide a safe space and encourage children to express their thoughts throughout the exploration. They should be mindful not to do the activity for children. Unlike how a classroom is usually conducted, there is no right or wrong answer in the exploration process, so the facilitators should not judge or give negative remarks about children's thoughts. Instead, a conversation based on children's opinions could expand their understanding of the working world.

**Supporting Materials.** A program guideline and supporting materials are provided to help the facilitator run the Exploration Corner. The materials include the 360° video contents, corresponding Mission Cards, and a visual journal template.

**Equipment.** A fundamental requirement to run the Corner is a 360° Video Viewing Set which includes a 3DoF VR viewer, a gyroscope and accelerometer-equipped smartphone, and an earphone. And last but not least, colorful stationery and some stickers for the Mission Card reward were also required.

## 4 IMPLEMENTATION

I implemented the Career Exploration and the Exploration Corner in Panglungan Village. Panglungan is a village located on the slope of Anjasmara Mountain in East Java, Indonesia. The village is surrounded by forest on three sides, and the only access to a nearby village is through the north area of the village. With the primary economic sector in agriculture, most people here work as farmers or stay-at-home moms. While 100% of the children in this village are registered in Elementary School or equivalent, the number of school enrollment continues to decrease even though this area has school facilities with free tuition up to High School. And only 10% of the students in this area continue their study to higher education. Most of them work as farmers or factory workers in neighboring cities after discontinuing their studies.

The Career Exploration Corner was installed on the front porch of Mr. A's house. He was also the facilitator for the corner. The house is near a Musholla (prayer hall), where some children usually spend their afternoon for religious education. (Figure 6). The exploration ran for two cycles on July 2022. Each cycle consists of four days, 2 hours each. A total of 43 children aged between 10 to 12 joined the exploration. Participants were free to return to the second cycle as they liked within the given schedule.



Figure 6: Career Exploration Corner at Panglungan Village.

## 5 FINDINGS AND DISCUSSIONS

Through the Career Exploration implementation, the impact of the activity on children’s aspirations using observation, survey, and output analysis methods. Combined with real-time observation, a video camera was set up to observe the participants during the activities. A deeper analysis of communication and interactions between participants was conducted using video recording. After each activity, a post-activity survey related to exploration was given out to participants. After excluding some data for consent and validity reasons, 69 data from the Corner Exploration and 40 from the Practice component were used for evaluation. Additionally, the efficiency of the corner and its replicability were looked upon through observation during and after the installation of the corner, along with interviews with the Corner Facilitators.

### 5.1 Promoting Aspiration in Children

#### 5.1.1 Children Identify the Relationship Between Learning, Life, and Work

The observation showed that children could explore the video in all directions through the cues given in the video. The result from the Reflect component showed that children internalized the learning in many different ways. Some identified the items in the environment, while others interpreted what was being said in the video and created their interpretation of how they would look doing that job (Figure 7).

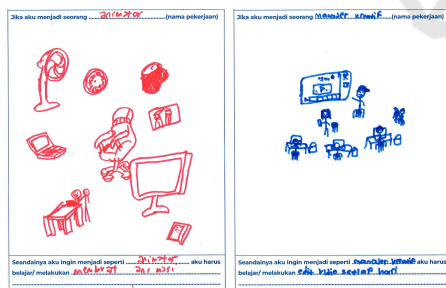


Figure 7: Children’s learning internalization.

Additionally, they reflected on what they should do or learn to become like the person in the video. The answers include general answers like “I should study hard” and “I have to study in college”; more specific knowledge or skills to the job like “I should draw better (to be a Game Illustrator),” “I should learn how to edit video (to be a Video Designer),” “I have to learn how to plant coffee seeds (to be a Coffee Quality Controller);” and attitudes or soft skills like “leadership (to be a Creative Manager),” “discussion skill (to

be a Professor),” “experimenting (to be a Biotechnologist),” “discipline (to be an Animator),” and “helping mom in the kitchen to be able to cook.”

#### 5.1.2 Children Experience How Skills Can Be Transferable

From the Mission Card result, it could be seen that children experienced how the skills can be transferable. One of the missions related to a professor’s job was to gather data and retell the information (Figure 8). The children commented that they learned about research skills, saying “I learned) to look for information from the internet and interviewed the village head.” The children also thought that the activity helped them understand the vital attitude introduced by the workperson. One of them commented “I have to be brave to ask questions and know how to collect data properly.” One of the parents’ feedback also stated the activity’s benefit to children’s daily life. “I am happy with this activity; my child has new experiences and broader insights about everyday life.”



Figure 8: Children’s finished Mission Cards.

#### 5.1.3 Positive Attitude Towards Their Future

After going through the activity, the children expressed their initial interest in the jobs. One of the children wrote comments directed at the workperson, saying “I want to be a professor”. The positive attitude was also reflected in the survey result, where the children were asked if they thought that they could be like the workperson. The majority of them answered “Yes” (Figure 9). The children also commented that the activity motivated them to learn and pursue their interests, stating “I gain experience and enthusiasm to pursue my aspiration” and “I gain experience and becoming more enthusiastic about going to school.”

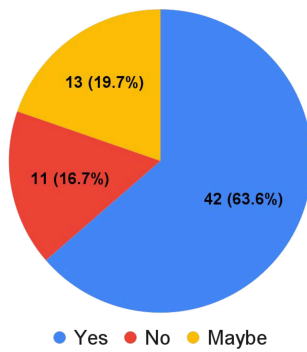


Figure 9: ‘Do you think you can be like the person in the video?’ (n=66).

### 5.1.4 High Interest to Explore More

According to the comments the children wrote for work people, they showed curiosity toward the job. They asked questions like “What do you usually do in the office?”, “How to make it (video mapping)?” etc. The parents also commented that the children asked many questions at home, saying “... they asked many questions; it forces us to think about giving logical and reasonable answers.” From 39 children who joined the first time, 28 children came on the second cycle. 89.3% of them said they wanted to watch another video. Most of them found the activity fun and would like to know more about other professions. The observation also showed the influence of peers on children’s learning decisions, from choosing the video to returning to the Corner for another cycle.

## 5.2 The Efficiency of Exploration Corner

### 5.2.1 Strategic Location Encourages Interaction

Since the Career Exploration Corner location was very close to the Musholla, many interactions were observed during and after the running of the Corner. During night prayer time, a group of children who did not join the exploration visited the Corner asking “What is this?”. Once they saw their friend’s name, they called that kid to explain about the Corner. Some kids also talked to the facilitator outside the exploration hours and asked “when can we watch another video again?”. After the validation period, two groups of children visited the Corner and asked to do the career exploration again.

### 5.2.2 The Technology Readiness

Due to the instability of the internet connection, the video contents were downloaded using a Premium

YouTube account so that they could be played in high-quality even without an internet connection.

### 5.2.3 Corner Facilitators Feedback

From the interview with Corner Facilitator, he understood the project’s goal and stated that the guideline was sufficient for them to comprehend the whole program. He also had enough time to understand the learning materials and prepare the logistics required. However, he stated that he needs more experience to help children who are shy to be more comfortable going through the exploration. He suggested that further training in dealing with children with various characteristics was necessary to facilitate better facilitation.

## 6 CONCLUSIONS

This research explored the design of a sustainable career exploration program for children with less access to role models to promote their aspirations. The validation investigated whether the exploration components help promote aspiration in children and whether the Corner Exploration supports the program’s sustainability. The result shows that new media could facilitate non-formal learning, like career exploration, in rural areas. It also emphasizes the important role of a learning center and facilitation. However, further research on facilitator training needs to be explored before moving forward to the service deployment.

Despite the promising result, the design is mainly implemented in Indonesia. Replication in other regions can increase the validity of the result. Additionally, the long-term impact on children’s career decisions could be evaluated later in the program. Lastly, While we were able to adapt to the speed of the internet during the implementation, it emphasized the need to improve the infrastructure quality in rural areas.

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