

A Community-Based Support Scheme to Promote Learning Mobility: Practices in Higher Education in Southeast Asia and Japan

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Abstract: Learning mobility enhances employability and expands career networks. Despite easy access to global knowledge and skills through online and short-term learning mobility programs, learning fragmentation and incoherence have become issues. This research proposes a new scheme called Inxignia, which aims to enable learners to achieve coherent learning continuity within or outside of School on the Internet Asia (SOI Asia), an inter-university network in Southeast Asia and Japan, and increase a sense of community. Inxignia integrates the three modes, namely (1) Engagement: Engaging with Communities of Practices within or connected to SOI Asia; (2) Imagination: reflecting on experiences and small-scale learning achievements in SOI Asia; and (3) Alignment: Coordinating with SOI Asia stakeholders to achieve the desired learning and career path. A micro-credentialing e-portfolio platform supports enhancing each mode such as a feature to support reflection and plan learning from a bird's eye view and open badges to visualize past journeys and future potential. The implementation results indicated that Inxignia supported Imagination and Alignment modes for SOI Asia Learners and the importance of including young faculty to make the scheme autonomous and sustainable.

1 INTRODUCTION

1.1 Research Background


Learning Mobility is defined as the mobility of learners transnationally, regionally, or online, undertaken for a specific period, organized for educational purposes (EU, 2023), and a learning experience where individuals move from their everyday context (LLL, 2016). It includes summer programs and Massive Open Online Courses (MOOCs). Learning Mobility enhances employability and career networks (Brandenburg et al., 2014)(Babcock, 2012). Today, people can easily acquire knowledge and skills and connect with people worldwide through online and short-term learning mobility programs (Brown et al., 2021) (Devlin et al., 2017). Although people can accumulate knowledge, skills, and experiences, the challenge is that the learning is short and different from the everyday context. Therefore, it will need more continuity with future learning and professional pursuits (van der Hijden and Martin, 2023). In a rapidly changing society, it is crucial to continue learning and acquiring

new skills through accumulating small-scale learning offered in different locations and disciplines (Brown et al., 2021). They also have the potential to provide education and training opportunities to a broader range of learners, including disadvantaged and vulnerable groups (EU, 2022). Therefore, it is crucial to solve the fragmentation and incoherence of learning.

A Landscape of Practice (LoP) offers a framework to integrate learning outcomes from different communities for future learning and careers (Wenger-Trayner et al., 2014). It comprises three modes: Engagement, Imagination, and Alignment. Engagement is participation in activities of Communities of Practice (CoPs), not just memorizing knowledge one way online or only in school. Imagination is using our imagination to understand our current position and possibilities. Alignment is coordinating stakeholders to achieve desired effects in the real world. Comprehensive learning outcomes can incorporate even short-term learning experiences through different modes.

1.2 Experimental Field

Inter-university networks play a crucial role in learning mobility. They offer joint educational programs

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and credit transfers among partner universities, funding for study abroad, and collaborative research. Inter-university networks exist in various fields and sizes, depending on their objectives.

The research is conducted in SOI Asia (School on the Internet Asia), an inter-university network in Southeast Asia and Japan (Figure 1). Twenty-four universities from twelve countries join this network.



Figure 1: Map of SOI Asia partner universities.

SOI Asia offers learning mobility programs in collaboration with partner universities, such as the Asia Pacific Internet Engineer (APIE) program, to build Internet Engineering skills, knowledge, and community (SOI-Asia, 2016) (Arima et al., 2023). These programs combine in-person and online activities over a few months or weeks and provide opportunities to connect with communities in the region. APIE consists of self-paced online courses, synchronous online sessions, an on-site camp, and an internship. The program begins with the self-paced online courses on FutureLearn, an online education platform, and the synchronous online sessions held fortnightly. After finishing these components, participants can apply for the on-site camp. The camp is held in various locations based on which partner university becomes the host. This one-week training program teaches participants how to independently deploy enterprise-level networks, providing them with practical and valuable knowledge. The internship is available for candidates who have completed all other program components in collaboration with relevant communities. Around 300 undergraduate and graduate students from partner universities in seven countries and various disciplines applied to the course in the latest batch in 2023.

During the interviews with a director of SOI Asia and one advisory board member, they stated that the community's objective is to provide programs enabling all competent cyberspace engineers in each country and economy to collaborate. This collaboration will enable them to interact with people beyond network engineers and work together to solve social

issues in the future.

1.3 Preliminary Research

The research takes the APIE program as an example to understand the situation in SOI Asia through the lens of the LoP framework. The research found that SOI Asia has a strong Engagement mode due to the opportunity to interact with peers, faculty, and working professionals from diverse backgrounds with a shared interest in internet engineering. An online survey of the 28 participants in APIE indicates high Engagement levels. The survey used a five-grade evaluation, and respondents chose from Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree for questions related to rating on Engagement. The survey includes eight questions. More than 90 percent of respondents agree or strongly agree that they could confidently explain to others the objective and content of the APIE program. Also, they are willing to be more involved in the APIE community by participating in internships and as teaching assistants. More than 86 percent of respondents answered that the most significant impact on their motivation is having a clear idea of how they can utilize the experience for their future learning and career or enjoyment of the learning process. During the in-depth interview, respondents who chose either of these answers highlighted that it was greatly influenced by the ability to meet and interact with people from different contexts and professionals in the field.

However, for Imagination and Alignment, the results of the interviews and observation indicated a need to support learners in navigating these two modes. Even though interacting with faculty and working professionals gave them a clearer idea of their career possibilities, they need opportunities to imagine where they stand and the next step to achieve their career image after the program. Some students mentioned that they did not know what to learn next after the program ended, and they returned to their daily lives. Furthermore, if they do, there is no opportunity to communicate their needs to the other stakeholders to realize the step. The online survey evaluated the Sense of Community with ten APIE camp participants using The Brief Sense of Community Scale (BSCS)(Peterson et al., 2008). The BSCS was designed to assess the dimensions of Needs Fulfillment, Group Membership, Influence, and Emotional Connection by using a 5-point Likert-type response option format ranging from strongly agree to disagree strongly. It has nine questions and 2-3 questions for each dimension. Although there were only a few samples available, they provided interesting in-

sights. As a result, all ten students selected either Agree or Strongly Agree for all dimensions except for Influence. In contrast, they chose Strongly Disagree, Disagree, or Neutral for the questions related to Influence, a sense of mattering, of making a difference to a group. It is strongly related to the Alignment mode. The average for the Influence question was 3.75, while the average for the other dimensions ranged from 4.4 to 4.5. In in-depth interviews, one respondent mentioned they did not have an opportunity to communicate their needs to stakeholders. Lack of Imagination and Alignment modes may prevent them from further Engagement in the community, and from developing a sense of community to SOI Asia related to SOI Asia's objective mentioned in 1.3.

SOI Asia is also challenged by the gap in learning and career opportunities among universities. In an interview with a partner university from Indonesia, one faculty member said that his university is located in an area that is not as central as the universities in Jakarta, and companies do not recognize the quality of the students. Suppose we create an environment where smaller-scale learning mobility programs lead to continued consistent learning and further involvement in the community. In that case, it can solve this opportunity gap by increasing their employability and career network. This research aims to design a scheme integrating three modes defined by the LoP framework for learners to encourage coherent learning continuity within or outside of SOI Asia and a sense of community in SOI Asia. Quantitative and qualitative evaluation was used to validate the impact of the delivery method.

Next, a literature review explored the LoP framework and the possibilities of designing Imagination and Alignment modes that are lacking in SOI Asia.

2 LITERATURE REVIEW

2.1 Communities of Practice and Landscape of Practice

Lave and Wenger define learning as a participation process in a Community of Practice (CoP). A CoP is a group of people who share a common concern, problem, or interest and come together to fulfill individual and group goals. The Landscape of Practice (LoP) concept compares participation in multiple CoPs to a landscape and that learning is the path one follows in that landscape. The learning outcome is the identity formed while traversing this landscape (Wenger-Trayner et al., 2014). The following are modes for building identity in LoP (Wenger-

Trayner et al., 2014)(Morimoto et al., 2014)(de Nooijer et al., 2022):

- **Engagement.** To participate in an activity by working or talking with people in the CoPs.
- **Imagination.** Using our imagination to situate ourselves in the world, identify different ways of thinking, reflect on our situation, and search for new possibilities.
- **Alignment.** A two-way process of adjusting perspectives, interpretations, and contexts so that actions have the expected effects.

Wenger notes that while these modes of identification are distinct, they are the most effective in combination (Wenger-Trayner et al., 2014).

A few practical studies still have yet to be conducted in the context of inter-university networks. Therefore, this research can contribute to validating this framework in that aspect.

2.2 Reflection Method for Learning

In the context of SOI Asia, Imagination is reflecting on experiences, including small-scale learning, to imagine where they stand and future learning and career possibilities. E-portfolio is a tool accepted and used for reflection in education (Hamdan and Yassine-Hamdan, 2022). It is also used to plan for the future (Morimoto et al., 2014). An E-portfolio is electronic data that continuously accumulates all possible learning evidence to utilize it to promote learning and career development (Wiedmer, 1998)(Morimoto et al., 2014). The emergence of an e-portfolio, an electronic or digital portfolio, in the mid-1990s constituted a small step within the school reform agenda and teacher accountability, where learners construct, articulate, and assess their learning. Thus, using an e-portfolio, students respond to challenges in preparing critical thinkers who participate in the learning process rather than act as passive recipients (Hamdan and Yassine-Hamdan, 2022). Also, building structured opportunities, such as using e-portfolios to reflect and integrate learning, can improve students' ability to reflect better (Hj. Ebil et al., 2020). However, they contain a large amount of information, making them less likely to be reviewed on an ongoing and overarching basis. There is a need for other approaches to lifelong learning that combine learning offered in different locations and disciplines.

Life storytelling is an act of telling one's life story as a reflection method and an action performed to understand oneself and the world (Trentham, 2007). This reflection method is used in e-portfolios as

well. For example, Kanazawa Institute of Technology provides an e-portfolio where students register their life history (KIT, 2017). Arima proposed the Life-storytelling Board, a tool designed to be consistent in life-storytelling, creating opportunities for continuous and overarching reflection on life (Arima, 2021). Combining blocks with keywords related to the episode of the user's life supports continuous reflection on the whole life and its relationships without information overload with text. Specifically, the speaker and listener interact and write the speaker's experiences and memories - episodes - in hexagonal blocks called episodic blocks. This process connects the individual episodes to the episodic block, an Ontological Metaphor. An Ontological metaphor is a metaphor whereby abstract, unwieldy, or fuzzy concepts are viewed as objects with human scale and interaction potential (Lakoff and Johnson, 1980). This process transforms abstract and ambiguous episodes into a handleable form. These episodic blocks will download episodes onto the physical or online space, thus reducing the cognitive load on the brain. Multiple episodic blocks can be combined, divided, and arbitrarily placed in physical or online space to bring meaning to the relationships between episodic blocks.

2.3 Co-Design of Learning in Multiple Stakeholders

Alignment within the context of SOI Asia means coordinating with stakeholders to achieve the desired learning and career pathways. Co-Design is one of customer co-creation, and it allows a design team to combine two sets of knowledge that are key to service design: Customer insights into latent user needs and in-house professionals' conversion of promising new ideas into viable concepts (Trischler et al., 2018). Co-Design allows selected customers or users to become part of the design team as experts in their experiences. By actively involving customers in the innovation process, the firm can overcome the problem of user needs being sticky, difficult to transfer, and articulate (Von Hippel, 2001) (Witell et al., 2011). The involvement of key users through Co-Design during the ideation stage of a service design process can lead to the development of design concepts with more significant user benefit than a team composed solely of in-house experts (Trischler et al., 2018).

Micro-credentials can be used to create a learning pathway by combining various forms of learning opportunities by different entities. Micro-credentials certify learning outcomes acquired in much smaller learning modules than a traditional degree. Its role makes learning outcomes visible and provides a com-

mon language within the communities while simultaneously resolving fragmentation of small-scale learning (Yonezawa, 2020). Micro-credentials are often provided as Open Badges, digital representations of credentials as digital badges that contain metadata about learning achievements such as information on the issuer, the badge criteria, and so on (IMS, 2020). There are micro-credential services that provide the ability to create, issue, collect, and share Open Badges, such as Credly. The services also provide a Learning Pathway function that combines different badges to visualize learning pathways available for learners. Companies, universities, and educational institutions are increasingly adopting those services.

2.4 Summary

The literature review indicates that the LoP provides a framework for considering solutions to fragmentation and incoherence of learning. Specifically, to integrate learning from different CoPs as identity = learning outcomes, it is crucial to navigate through three modes: Engagement, Imagination, and Alignment. While SOI Asia supports Engagement, the need for help in Imagination and Alignment was suggested based on the preliminary research.

A further literature review was conducted to design methods for Imagination and Alignment in SOI Asia. Regarding Imagination, the literature review suggested that e-portfolios can effectively encourage reflection. The Life-storytelling Board allows for visual, comprehensive, and ongoing reflection on life-extended learning in different CoPs. Regarding Alignment, it indicates that involving learners and experts, such as faculty members and working professionals, in designing learning pathways makes it easier to incorporate learners' needs. Additionally, micro-credentials make learning outcomes visible and provide a common language for various educational programs offered by different organizations. Therefore, it is suitable for visualizing learning opportunities from different organizations, bringing them together as a single learning path, and continuously editing them.

3 RESEARCH DESIGN

This research proposes Inxignia: A community-based scheme to promote learning mobility. It consists of the process that supports learners in navigating three modes defined based on the LoP framework and a micro-credentialing e-portfolio platform to enhance each mode. Three SOI Asia community members join

the scheme proposed in this research: Learners who are current or former students of the partner universities, faculty from SOI Asia partner universities, and working professionals who are experts with several years of experience in industries, governments, and international organizations. Figure 2 gives a whole picture of Inxignia. The utilization of technology enhances each mode, such as e-portfolios for tracking learning journeys and learners' spontaneous reflection and the open badge to provide a common language to design learning with multiple stakeholders.

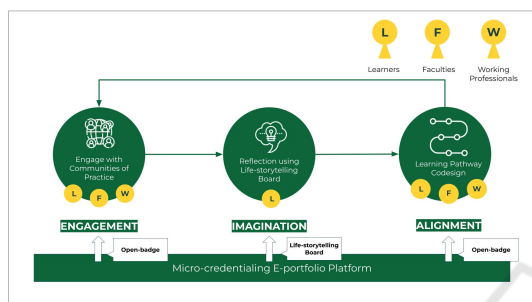


Figure 2: Inxignia Scheme.

In addition to the features of other micro-credentialing services, the platform offers the Life-storytelling Board. The platform will be updated to integrate and manage micro-credential data from other sources so learners can utilize them for each process. The platform uses an Open-Badge to maintain compatibility with other micro-credential systems and works on adaptation with version 3.0. It unifies the information to be included in Open-Badge with other micro-credential services. Quality assurance standards will also be aligned in the future.

In the Engagement mode, learners engage with CoPs within or connected to SOI Asia through learning mobility programs. The Faculty designed and delivered the programs involving Working Professionals' interaction with learners through lecturers and other forms. To motivate the further participation of learners, recognition of small achievements in the form of open badges is issued and stored on the platform. Visualizing and collecting their learning achievements into a single platform is also expected to foster a sense of community across time and place. In the Imagination mode, learners use the life-storytelling board to reflect and imagine where they stand and their future possibilities. Then, through the Learning Pathway Codesign workshop, learners collaborate with faculties and working professionals to design their subsequent learning (Alignment mode). Participants can utilize existing learning opportunities to create the learning pathway and create new opportunities. Combined with the open badge to visualize

learning opportunities in the community. It will become a new credential if new learning opportunities are implemented. Lastly, community involvement is necessary to implement the ideas from the workshop and connect them to re-engagement.

This research is divided into three phases.

- Phase 1. Design Imagination component for Learners can imagine how they can connect the learning experience to the subsequent learning and career.
- Phase 2. Design Alignment component so Learners can communicate their needs to stakeholders.
- Phase 3. Integrate the scheme into the community to make it sustainable.

This paper reports on the results of Phase 1 and 2, and the progress of Phase 3.

4 IMPLEMENTATION

4.1 Phase 1. Life-Storytelling Board

This research proposes a Life-storytelling Board to facilitate the Imagination mode. Unlike the original Life-storytelling Board, design an online version to be added as a platform feature. Figure 3 shows an example of a completed board and the components to create the board.

To create the board, two or three Learners are paired up and divided into a speaker and a listener, and the speaker describes their formal and non-formal educational and professional history. Those keywords are written in a block and placed on the board. Each block of formal and non-formal educational history is color-coded. After placing the blocks about the past, the speaker set a goal in 5-10 years and considered the steps to bridge that goal and the present while placing the transparent blocks. Any comments or ideas they want to add should be noted and placed in the support block. The listener looks at the blocks and asks the speaker questions, digging deeper into past and future stories and offering ideas. When they reflect on the past and plan the future, they can place the digital badges they earned and plan to get on the block, to visualize the correlation.

Pre- and post-online surveys were conducted to see changes before and after the experiment. A 5-point Likert Scale, from Strongly Disagree to Agree Strongly, was used in the survey to avoid the extremes of yes/no answers and to understand the nuances of the answers. We asked twelve questions for each of the pre- and post-surveys. Interviews were also conducted to dig deep into the survey responses.

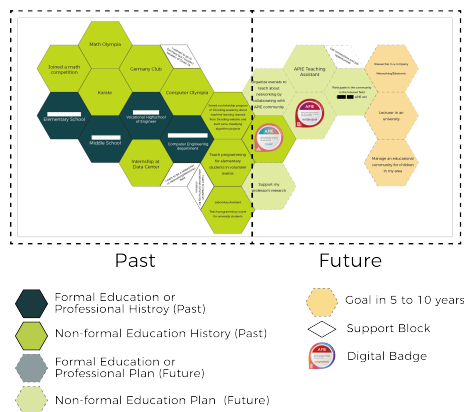


Figure 3: An Example of Life-storytelling Board and the Components (Ikeda et al., 2023).

The Life-storytelling Board was implemented with 27 students in APIE. This time, we used a visual collaboration platform, as a prototype. When asked if they had a clear idea of how APIE could be used in the long or short term, some respondents answered Neutral or Disagree before the test, and all responded Strongly Agree or Agree after they created the Life-storytelling Boards. The overall average also improved from 4.22 to 4.63. One respondent mentioned that he was able to come up with specific steps to take. In addition, seventeen speakers who did not state plans to utilize APIE in the pre-survey mentioned ideas for the future to take advantage of APIE opportunities, such as participating in an APIE Internship and getting deeper involvement with the APIE community after creating the Life-storytelling Board. Some also suggested that they could use the contacts they made at the APIE to hold workshops on their own campuses to share the knowledge they gained from the APIE. It indicated that the Life-storytelling Board prompted using the opportunities available inside and outside of SOI Asia to leverage the experience of participating in APIE. One student said this helps because he can see the big picture and how each block supports the other. Another said he thinks the most important thing is to see the connections, and looking back at the past and future trends made it clear what he is more interested in.

4.2 Phase 2. Learning Pathway Co-Design Workshop

This research proposes the Learning Pathway Co-design Workshop to support the Alignment mode. In the workshop, stakeholders discuss designing a learning pathway while involving learners as the experts of their experiences.

We ran three trials with a total of 33 participants and refined the workshop based on observations and feedback. The final trial separated the learners' and faculties'/working professionals' sessions to facilitate comfortable communication. Learners develop fictional characters called personas based on their current situation. Faculty and working professionals define the image of human resources they want to develop and create corresponding learning pathways using pre-defined learning activities (Figure 4). After faculty and working professionals create learning pathways, students provide feedback. Interviews and observations are conducted to assess if the Alignment mode is supported.

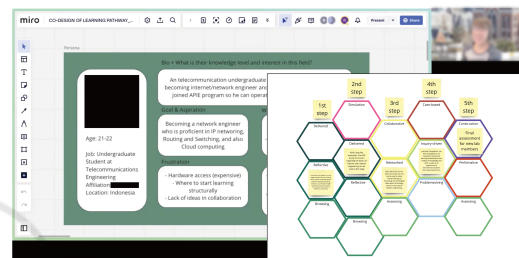


Figure 4: Learning Pathway Co-design Workshop and the Learning Pathway created.

The third trial was implemented online with three learners and four faculty members involved in the APIE program. They created subsequent learning pathways after the APIE program. This workshop took 90 minutes. The interviews and observation showed that the workshop enabled faculty members to understand learners' needs and discuss how it can be realized. One faculty member mentioned that learning design is traditionally faculty and government-centric in her country, and this approach enables a shift to student-centric. Two faculty members mentioned that the persona defined by learners supported understanding their needs. Another faculty said that vague ideas in his head became more concrete and realistic. Also, young faculty members actively led discussions, expressing interest in implementing the learning pathway at their campuses. One young faculty mentioned that if this proves successful, he wants to duplicate it at other universities. Students also spoke up more and showed interest in participating in the learning pathway. However, one student highlighted the lack of real-time exchange with faculty. This affects the sense of community. Therefore, the final scheme needs to be improved.

4.3 Phase 3. Community Integration

For the scheme to work well within a community, it is necessary to ascertain how the new initiatives work and create a scheme based on that. In the APIE Program, two instances where learning opportunities initiated by partner universities emerged in Indonesia, and interviews were conducted to investigate the factors contributing to this. The first instance was starting study groups at one of the partner universities in Indonesia after the APIE camp. This study group was focused on more advanced topics related to the program. The second instance was observed when a partner university implemented a program that replicated the content of the APIE camp.

The interview was conducted with four faculties, three teaching assistants, and six students from the partner universities. For the first instance, the study group began when one of the faculty members knew about the student's learning progress in the APIE program, which motivated him to support them in their subsequent learning. Specifically, it was when he heard that the students had completed their online studies and would participate in the APIE camp in Japan. The faculty member then approached other faculty members he knew and enlisted their help. However, there were challenges in continuing the study group. Learners commented that the faculty members who organized the study group were busy and had been canceled several times. One of the learners said he had tried conducting study groups but could not start without getting instructions on what to do.

The second case study was a partner university implementing a program modeled after APIE. The presence of young faculty and graduate students was cited as a significant factor influencing the implementation of this program. Young faculty and graduate students, who are the contacts of those who play a central role as SOI Asia community members, led the implementation of this program. Senior faculties were involved as mentors to them in implementing the programs or participated in the program as partial instructors or technical supporters. However, one of the young faculty members mentioned that it would be difficult for him to continue leading that program in the future because of his schedule. On the other hand, the doctoral student who became a Teaching Assistant showed motivation to organize the APIE program in the future. This suggested connecting the younger generation to take the next lead.

The result indicates that building bridges between students and the older generation of faculty and working professionals, including young faculty and gradu-

ate students, is essential to implementing the scheme sustainably and smoothly in the SOI Asia community. During the interview, the young faculty members and graduate students involved in the second case mentioned that their motivation for participating was to build relationships with other faculty members from different campuses or countries and gain the necessary skills for their careers, such as planning and implementing educational programs. In addition, because the educational programs at SOI Asia also involve corporations and international organizations as stakeholders, it can be an opportunity to expand career pathways outside academia. Applying these results to the community integration of the scheme, young faculty and graduate students can play a role in encouraging learners to conduct a Life-storytelling Board for Imagination mode. In the Alignment mode, they, with the mentorship of the older generation, will be responsible for sharing learners' progress, presenting ideas that emerge from the Learning Pathway Co-design Workshop in regular meetings of the SOI Asia community, and executing them.

5 CONCLUSION

This research proposes a community scheme called Inxignia to address the fragmentation of small-scale learning mobility programs. Designed based on Engagement, Imagination, and Alignment modes defined by LoP, it was implemented in SOI Asia. The research comprises three phases: the design of Imagination and Alignment modes, and the community scheme integration. In Phase 1, we designed the Life-storytelling Board, which supported learners in imagining how they could connect the learning experience to their subsequent learning and career. Phase 2 featured the Learning Pathway Co-design workshop to communicate learner needs to stakeholders. Phase 3 emphasized involving the young generation for scheme autonomy and sustainability in the community. The Life-storytelling Board and Learning Pathway Co-design Workshop will be integrated into the APIE program, led by young faculty and graduate students as the next plan. They spearhead activities such as encouraging learners to create a Life-storytelling Board, conducting the Learning Pathway Co-design Workshop, sharing workshop ideas with the SOI Asia community, and leading discussions for implementation in regular meetings. The following items will be evaluated through online surveys, interviews, and observations with community members.

- What factors contributed to the implementation of subsequent learning?

- What elements fostered the learning continuity of learners within or outside the community?
- What aspects led to improving learners' sense of community?
- What circumstances played a role in the sustainability of the scheme?

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