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Comparative Behavioural Evidence of Youth Engagement in Adaptively Reused Heritage Buildings in Kuala Lumpur

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ABSTRACT: Adaptive reuse has become an important strategy for revitalising heritage environments while preserving their cultural significance and accommodating contemporary urban needs. However, existing research has largely emphasised perception-based evaluations, with limited comparative evidence of how young people engage with different adaptively reused heritage environments through observable behaviours. This study aimed to compare youth engagement patterns across two heritage adaptive reuse settings with distinct spatial organisations and functional programmes. A qualitative comparative multiple-case study was conducted at Central Market and REXKL in Kuala Lumpur, employing systematic behavioural observation and behavioural mapping during weekday and public holiday periods. The findings revealed seven recurring forms of youth behaviour across both sites, including strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities. While these behaviours were commonly observed, their spatial distributions differed between the two cases. Central Market exhibited broader behavioural dispersion across indoor and outdoor commercial spaces, whereas REXKL showed greater concentration around multi-level creative, cultural, and communal areas. These findings demonstrate that similar forms of youth engagement can occur within different spatial and functional contexts. By providing cross-case behavioural evidence, this study contributes to a context-sensitive understanding of youth engagement in adaptive reuse and offers practical insights for developing more inclusive and youth-responsive heritage environments.

1. INTRODUCTION

Since the 1970s, adaptive reuse has become an increasingly important strategy for conserving heritage buildings while accommodating contemporary social needs (Powell, 1999). Rather than preserving historic buildings as static monuments, adaptive reuse seeks to extend their functional life by introducing new uses that respect their cultural significance and architectural character (Wong, 2016; Brooker & Stone, 2019). As rapid urbanisation and changing societal demands continue to place pressure on historic environments, adaptive reuse is widely recognised as an important approach to supporting the

long-term use and conservation of heritage buildings (Schittich, 2012; Günçe & Mısırlısoy, 2014). Accordingly, recognising these challenges, UNESCO has advocated that heritage conservation should extend beyond the protection of physical structures to include management strategies that ensure the continued use and relevance of heritage places within contemporary society (UNESCO, n.d.). However, the success of adaptive reuse is no longer determined solely by the conservation of heritage values or physical restoration, but also by whether these revitalised heritage places can continue to attract people, accommodate everyday activities, and remain socially vibrant. Therefore, understanding how different user groups engage with adaptively reused heritage buildings has become an increasingly important consideration in achieving sustainable heritage conservation.

Among different user groups, young people have become one of the most active participants in adaptively reused heritage buildings. Compared with other age groups, young people are more likely to seek authentic experiences, creative environments, and socially interactive places that support cultural exploration, leisure, learning, and innovation (Richards, 2011; Florida, 2002). As many adaptively reused heritage buildings have gradually evolved into cafés, creative markets, cultural venues, coworking spaces, and entrepreneurial hubs, they increasingly attract young people as both visitors and active contributors to these revitalised environments (Zapalac, 2015; Tu, 2020). Rather than serving merely as visitors, young people contribute to the social vitality, cultural continuity, and economic sustainability of heritage places through diverse forms of engagement, including social interaction, cultural participation, digital content creation, creative activities, and entrepreneurial initiatives (Lim et al., 2013; Rauk et al., 2023). Such engagement also promotes positive youth development by strengthening competencies, confidence, and a sense of belonging through meaningful participation in community and cultural activities (Damon, 2004; Lerner et al., 2005; Fagan & Catalano, 2015; Zeldin, 2004). The importance of youth engagement is illustrated by community-led adaptive reuse initiatives such as the Arte Corte project in Old Havana of Cuba, where the revitalisation of historic neighbourhoods has not only enhanced cultural tourism but also created vocational training, employment, and entrepreneurial opportunities for local youth (Hill & Tanaka, 2015). These examples suggest that the long-term success of adaptive reuse depends not only on conserving historic buildings but also on attracting and sustaining meaningful youth engagement. More importantly, youth engagement can be examined through observable behaviours, including strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities. As these behaviours occur within heritage environments with different spatial organisations and functional programmes, understanding how their patterns vary across adaptive reuse settings is important for developing more responsive heritage environments.

Existing studies on adaptive reuse have made substantial contributions to understanding heritage conservation, adaptive reuse values, tourism development, visitor satisfaction, place attachment, and stakeholder perceptions (Bullen & Love, 2011; Plevoets & Van Cleempoel, 2011; Günçe & Mısırlısoy, 2014; Douglas, 2006; Langston et al., 2008). These studies have demonstrated the cultural, social, economic, and environmental benefits of revitalising historic buildings while highlighting the importance of user experiences in sustaining adaptive reuse projects (Bullen & Love, 2011; Plevoets & Van Cleempoel, 2011; Dyson et al., 2016; Gao et al., 2020; Buonincontri et al., 2017). However, much of the existing research has relied on questionnaires, interviews, or perception-based evaluations that primarily capture users' reported experiences rather than their directly observable behaviours within adaptively reused heritage environments (Bullen & Love, 2011; Gao et al., 2020; Buonincontri et al., 2017). Furthermore, limited comparative behavioural evidence is available to explain how youth engagement patterns differ across heritage environments with distinct spatial organisations and functional programmes. Behavioural mapping offers a useful approach to addressing these limitations by systematically recording visible human activities and their spatial distributions (Whyte, 1980; Gehl & Svarre, 2013; Carmona et al., 2010). Widely adopted in environment-behaviour and public life research, this technique enables researchers to document where people move, rest, interact, and participate, providing direct evidence of how public spaces are used (Whyte, 1980; Gehl & Svarre, 2013). Applying a consistent behavioural mapping protocol across different adaptive reuse settings therefore provides an empirical basis for comparing shared and site-specific patterns of youth engagement.

Therefore, this study aims to examine and compare observable patterns of youth engagement in adaptively reused heritage buildings with different spatial and functional characteristics. Specifically, the objective is to identify shared and site-specific behavioural patterns and examine how youth activities vary across different adaptive reuse settings. To achieve this objective, a qualitative comparative multiple-case study was conducted at Central Market and REXKL in Kuala Lumpur, employing systematic non-participant observation, behavioural mapping, and cross-case analysis. By comparing directly observable

behaviours rather than relying solely on self-reported perceptions, this study provides empirical evidence of how youth engagement is expressed across different heritage environments. The findings contribute to a more context-sensitive understanding of adaptive reuse and offer practical insights for architects, urban planners, heritage managers, and policymakers seeking to develop inclusive and youth-responsive heritage places.

2. MATERIALS AND METHODS

2.1 Research Design

This study employed a qualitative observational research design within a comparative multiple-case study framework to examine youth engagement in adaptively reused heritage buildings through observable behaviours. A qualitative approach was considered appropriate as the study sought to understand behavioural patterns within their natural settings rather than measure predetermined variables or test causal relationships (Creswell & Poth, 2018; Yin, 2018). Central Market and REXKL in Kuala Lumpur were selected as two comparable adaptive reuse cases with different spatial organisations and functional programmes, enabling a cross-case examination of shared and distinctive patterns of youth engagement (Yin, 2018). Data were collected through systematic non-participant observation, with behavioural mapping employed to record visible human activities and their spatial distributions (Whyte, 1980; Gehl & Svarre, 2013). The analysis combined within-case observations and cross-case comparisons to identify recurring behavioural patterns and examine how youth engagement varied across different spatial and functional contexts. This design provided empirical comparative evidence of youth engagement within adaptively reused heritage environments.

2.2 Study Sites

Kuala Lumpur was selected as the study context because it contains one of the highest concentrations of adaptively reused heritage buildings in Malaysia, where historic structures have been revitalised to accommodate contemporary commercial, cultural, and community functions while maintaining their heritage significance (Harun, 2011; Al-Obaidi et al., 2017; Abdullah & Zawawi, 2011). As the nation's capital and largest metropolitan centre, Kuala Lumpur has experienced continuous urban regeneration in which adaptive reuse has become an important strategy for balancing heritage conservation with economic development and urban revitalisation (Bullen & Love, 2011; Plevoets & Van Cleempoel, 2011; Shamsuddin et al., 2013). The city also supports a vibrant creative economy, diverse public activities, and an active youth population, making it an appropriate urban context for investigating youth engagement within adaptively reused heritage buildings (Florida, 2002; Richards, 2011).

Within Kuala Lumpur, the study sites were selected through purposive sampling based on four criteria. First, the buildings had to represent recognised examples of successful adaptive reuse that retained their heritage significance while accommodating new functions (Plevoets & Van Cleempoel, 2011; Bullen & Love, 2011). Second, the sites needed to function as publicly accessible places with a high level of daily activity, allowing observable behavioural patterns to occur naturally (Whyte, 1980; Gehl & Svarre, 2013). Third, the selected sites were required to demonstrate substantial youth presence through cultural participation, leisure activities, and social interaction (Florida, 2002; Richards, 2011). Finally, the cases were expected to exhibit contrasting adaptive reuse strategies and spatial characteristics so that behavioural similarities and differences could be examined across different heritage environments (Yin, 2018). Based on these criteria, Central Market and REXKL were identified as appropriate study sites because both represent successful adaptive reuse projects while demonstrating distinctive functional and spatial characteristics (see Figure 1).

Central Market is one of Kuala Lumpur's most prominent examples of adaptive reuse. As shown in Figure 2, originally constructed in 1889 as the city's central wet market and expanded in the 1930s with its current Art Deco façade, it served as the principal marketplace for wholesalers and retailers of fresh produce until the late 1970s (Sendut, 1965; Yacob Omar & Ishak, 2009; Abdullah, 2016). Following a major conservation initiative, the building was adaptively reused as a cultural marketplace that accommodates local arts, crafts, retail, food, and cultural activities (Abdullah, 2016; Iqbal et al., 2020). In 2024, Central Market underwent a further phase of revitalisation with a renewed tenant strategy and the integration of its surrounding outdoor lanes into the commercial programme, strengthening its connection with the surrounding streets and enhancing its attractiveness to younger visitors (Lim, 2025). Today, the site functions as a vibrant heritage destination where commercial activities, cultural experiences, and everyday public life coexist (see Figure 3).

In contrast, REXKL represents a more recent example of adaptive reuse in Kuala Lumpur. Originally opened as the Rex Theatre in 1947 on Jalan Sultan (see Figure 4), the historic cinema building was transformed into a multifunctional cultural and creative hub while retaining much of its industrial character (Kadir et al., 2022). The adaptively reused building now accommodates bookstores, cafés, retail spaces, exhibitions, performances, creative markets, and community events within flexible interior spaces that support diverse patterns of public use. As shown in Figure 5, through its open spatial configuration and programme diversity, REXKL has become an active venue for creative industries, independent artists, and community initiatives, while also attracting a substantial number of young visitors who use the space for leisure, social interaction, cultural participation, and creative activities (Kadir et al., 2022; Said et al., 2025).

Although both Central Market and REXKL are widely recognised as successful adaptive reuse projects, they represent different approaches to heritage revitalisation. Central Market primarily reflects a commercially and culturally oriented adaptive reuse model, whereas REXKL emphasises creative production, community participation, and flexible use of space. Examining these two contrasting yet comparable cases enables behavioural patterns to be observed across different adaptive reuse settings while reducing the influence of site-specific characteristics on the findings. Consequently, the comparative design strengthens the robustness of the study by providing a broader understanding of youth engagement in adaptive reused heritage environments.

2.3 Behavioural Mapping Procedure

In this study, behavioural mapping was used as a site observation technique to document observable forms of youth engagement in Central Market and REXKL. Unlike interview- or questionnaire-based methods, behavioural mapping is commonly used in environment-behaviour and public life studies because it connects observable human activities with specific spatial settings (Whyte, 1980; Gehl & Svarre, 2013). It enables the researcher to record where people move, stay, interact and participate, and therefore provides a useful way to understand how spatial environments support public activities (Gehl & Svarre, 2013). As direct observation does not permit the verification of participants' chronological ages, youth were identified according to their apparent age, following established behavioural observation protocols that classify users into broad age groups through visual estimation (Gehl & Svarre, 2013; McKenzie et al., 2006). Individuals whose age could not be reasonably distinguished were excluded from the observation records to enhance the consistency of the behavioural mapping.

For Central Market (including Kasturi Walk), eight observation zones were identified: the main entrance (CM-A), main corridor (CM-B), craft and souvenir retail area & pop-up markets on the public holiday (CM-C), food and beverage seating area (CM-D), Kasturi Walk entrance (CM-E), Kasturi Walk stalls (CM-F), street edge or shophouse relation (CM-G), and photo-taking or landmark point (CM-H). For REXKL, eight comparable observation zones were identified: street entrance (RX-A), ground-floor circulation (RX-B), food & beverage area and food hall (RX-C), bookstore and retail area (RX-D), exhibition and event area (RX-E), staircase and vertical circulation (RX-F), seating and gathering point (RX-G), and pop-up and creative retail on public holiday (RX-H). These zones were used to ensure that the observation remained spatially organised and comparable between the two sites.

The observation was conducted on one weekday and one public holiday to provide contextual support for documenting observable forms of youth engagement in adaptive reuse environments. Central Market was observed from 14:00 to 15:30, while REXKL was observed from 16:30 to 18:00. The observation zones included CM-A to CM-H for Central Market and RX-A to RX-H for REXKL. Across these zones, seven observable behavioural categories were recorded: strolling, resting, social interaction, consumption, cultural participation, digital engagement and entrepreneurial-related activities. One scan was recorded every ten minutes, and each scan noted the visible activities occurring in the relevant zone. The scan protocol also included brief note-taking and photographic documentation to support the interpretation of spatial activities. The observation schedule is shown in Table 1.

Table 1. Observation schedule for the behavioural mapping

Date	Day type	Time period	Observation zones	Observation purpose
29 April	Weekday	14:00–15:30	CM-A to CM-H in Central Market (including Kasturi	To observe ordinary weekday patterns of youth strolling, browsing, consumption,

			Walk)	short staying and cultural-retail activities
29 April	Weekday	16:30–18:00	RX-A to RX-H in REXKL	To observe weekday afternoon-to-evening patterns of staying, social interaction, F&B use, reading, exhibition engagement and light working behaviour
1 May	Labour Day public holiday	14:00–15:30	CM-A to CM-H in Central Market (including Kasturi Walk)	To observe peak holiday patterns of youth strolling and walking, photo-taking, shopping, creative consumption and outdoor lane activities
1 May	Labour Day public holiday	16:30–18:00	RX-A to RX-H in REXKL	To observe public holiday afternoon-to-evening patterns of social interaction, F&B use, events, pop-up market activities, exhibition engagement and youth gathering

The behavioural mapping process enabled youth engagement to be documented through seven observable behavioural categories. Strolling included entering, passing through, and exploring reused spaces, while resting involved sitting, pausing, reading, or remaining in designated areas. Social interaction included communication and group activities, whereas consumption involved browsing, purchasing, eating, and drinking. Cultural participation covered observable engagement with exhibitions, crafts, performances, and cultural displays. Digital engagement included photo-taking, video recording, and smartphone-based activities. Entrepreneurial-related activities included observable interactions with small businesses, pop-up stalls, creative retail, and workshops. These categories provided a consistent basis for recording and comparing youth behaviours across both study sites.

To enhance the consistency and reliability of the observational data, a standardised observation protocol was applied across both study sites. The same behavioural categories, observation procedures, recording format, and scan intervals were used throughout the data collection process to ensure consistency between observations. All observations were conducted by the same researcher, thereby eliminating potential variations associated with multiple observers. In addition, observations were conducted on both a weekday and a public holiday, with consistent site-specific observation periods maintained across the two days to document behavioural patterns under different levels of site activity. Photographic records were used to complement the observation sheets where appropriate, providing additional contextual information to support the interpretation of observed behaviours. These procedures helped minimise observational bias and enhanced the credibility of the behavioural mapping results (Gehl & Svarre, 2013; Whyte, 1980). The observational data were subsequently coded and compared to identify shared and site-specific patterns of youth engagement across the two adaptive reuse settings (see Table 2).

Table 2. Behavioural Mapping Observation Protocol

Component	**Description**
Research method	Systematic non-participant observation using behavioural mapping
Study sites	Central Market and REXKL, Kuala Lumpur
Observation period	One weekday and one public holiday
Observation sessions	Central Market: 14:00–15:30; REXKL: 16:30–18:00
Observation interval	Every 10 minutes
Observation zones	Eight predefined zones per site based on spatial layout and functional characteristics
Behaviour categories	Strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities

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Recording methods	Observation sheets, behavioural maps, field notes, and photographs
Observer	Single researcher
Analysis	Within-case behavioural analysis and cross-case comparison

2.4 Data Analysis

The observational records collected from Central Market and REXKL were first reviewed and organised according to the predefined observation sheets. Individual activities were coded based on directly observable behaviours rather than inferred intentions to ensure that the analysis remained grounded in the recorded field observations (Whyte, 1980; Gehl & Svarre, 2013).

The coded behaviours were subsequently organised into seven behavioural categories, namely strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities. These categories were established prior to data collection based on previous environment‑behaviour studies and were used consistently throughout the coding process to facilitate systematic comparison between the two study sites (Gehl & Svarre, 2013; Carmona et al., 2010).

Following behaviour coding, the spatial distribution and occurrence of each behavioural category were first examined within each case and subsequently compared between Central Market and REXKL to identify shared and site-specific behavioural patterns. The cross-case comparison focused on similarities and differences in observable youth engagement across different spatial and functional settings rather than statistical relationships or causal effects (Yin, 2018).

Finally, the comparative findings were synthesised to identify common and distinctive characteristics of youth engagement across the two adaptive reuse cases. This synthesis examined how recurring behaviours were distributed and expressed within different spatial and functional contexts, providing a comparative understanding of youth engagement in adaptively reused heritage buildings. The analytical process is summarised in Table 3.

Table 3. Behavioural Data Analysis Process

Stage	Description	Output
Data organisation	Review observation sheets, behavioural maps, and photographs	Organised observation records
Behaviour coding	Code directly observable youth activities	Behaviour codes
Within-case analysis	Examine behavioural categories and spatial distributions within each site	Site-specific behavioural patterns
Cross-case comparison	Compare behavioural patterns between Central Market and REXKL	Shared and distinctive patterns
Comparative synthesis	Integrate cross-case findings across spatial and functional contexts	Comparative characteristics of youth engagement

3. RESULTS AND DISCUSSION

3.1 Behavioural Mapping findings

The behavioural maps of Central Market, including Kasturi Walk, show the spatial distribution of observed youth activities during the weekday and Labour Day sessions (Figures 6 and 7). On the weekday, observations clustered around the main entrance, internal circulation routes, food and beverage areas, craft and souvenir shops, and Kasturi Walk. On Labour Day, recorded activity occupied a wider range of indoor and outdoor locations, particularly the outdoor commercial corridor and principal circulation spaces. Strolling, consumption, social interaction, digital engagement, and entrepreneurial-related activities were documented across these settings. The maps thus show both a change in the extent of occupied space and the continued use of street-facing commercial areas.

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The REXKL maps present a different spatial configuration of observed youth activities within a compact, multi-level reused building (Figures 8 and 9). Recorded activities clustered around the entrance, bookstore, cafés, exhibition areas, and shared seating spaces. During Labour Day, observations appeared more concentrated in creative retail, event-related, and communal areas than on the weekday. Resting, social interaction, cultural participation, and digital engagement were visible within these indoor settings. Unlike the broader dispersion recorded at Central Market, the holiday observations at REXKL were largely concentrated around established activity nodes across its floors.

Across both sites, the Labour Day maps show greater observed activity than the weekday maps, although the spatial form of this change differs. Central Market shows wider occupation of indoor–outdoor circulation and commercial spaces, whereas REXKL shows more localised clusters within its multi-level creative and communal setting. These maps establish the spatial and temporal context for the photographic cross-case comparison below. Because the maps document observed activity rather than standardised visitor counts or individual dwell times, the comparison concerns distribution and apparent concentration, not quantified participation rates.

3.2 Comparative Behavioural Patterns

Table 4 brings together representative photographs of seven observable behaviours—strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities—recorded at both sites during the weekday and Labour Day sessions. Their presence in both settings points to a shared repertoire of youth activities, while the photographic evidence also places these activities within different spatial and functional contexts.

At Central Market, strolling and consumption were documented along circulation and retail areas extending towards Kasturi Walk; resting and social interaction also appeared around food, seating, and gathering locations. At REXKL, the corresponding photographic records place resting and social interaction more visibly within indoor communal areas, alongside cultural participation and digital engagement around creative and exhibition-oriented spaces. Both sites provided settings for cultural, digital, and entrepreneurial-related activities, but the locations and surrounding uses of these activities differed. These contrasts describe where the recorded behaviours occurred; they do not establish differences in visitor preference or the duration of participation.

The weekday–holiday comparison adds a temporal dimension to these site differences. At Central Market, the holiday observations extended across a broader indoor–outdoor area; at REXKL, they remained comparatively focused on established communal and creative nodes. The combined maps and photographs therefore identify two related findings: recurring behavioural categories shared by both sites, and different spatial arrangements of those behaviours. The cross-case synthesis in Section 3.3 draws these strands together.

Table 4. Comparative photographic matrix of observable youth engagement across Central Market and REXKL

Observable factor	Central Market Weekday	Central Market Labour Day	REXKL Weekday	REXKL Labour Day
Strolling	 Photo: CM-A	 Photo: CM-H	 Photo: RX-F	 Photo: RX-F

Resting


Photo: CM-D


Photo: CM-C


Photo: RX-G


Photo: RX-D

Social interaction


Photo: CM-F


Photo: CM-B


Photo: RX-A


Photo: RX-F

Consumption



Photo: CM-C


Photo: CM-C


Photo: RX-C


Photo: RX-D

Cultural participation


Photo: CM-C



Photo: CM-C


Photo: RX-D


Photo: RX-E

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Digital engagement



Photo: CM-B



Photo: CM-A



Photo: RX-D



Photo: RX-A

Entrepreneurial-related activities



Photo: CM-F



Photo: CM-C



Photo: RX-D



Photo: RX-H

3.3 Cross-case Synthesis of Youth Engagement

The comparison indicates that the seven observed behaviours were not unique to either heritage site. However, their spatial configurations differed in relation to the two buildings' circulation systems and activity settings. Central Market combined indoor commercial routes with the adjoining Kasturi Walk pedestrian environment, whereas REXKL organised much of the observed activity around multi-level indoor creative, cultural, and communal spaces. Table 5 summarises these shared behaviours and the site-specific patterns supported by the observational records.

The findings distinguish behavioural recurrence from spatial uniformity: similar activities can be observed in both adaptively reused heritage settings without occupying equivalent types of space. Likewise, the greater observed activity during Labour Day did not produce identical spatial changes at the two sites. These contrasts suggest that comparisons of youth engagement should account for the location and functional context of activities rather than treating the occurrence of a behaviour alone as a measure of engagement.

Together, the cross-case findings provide a context-sensitive account of youth engagement in two adaptively reused heritage environments in Kuala Lumpur. The results offer a basis for discussing how different spatial and functional arrangements may accommodate shared forms of youth activity, while leaving questions of causal influence, individual motivation, and perceived well-being for further research.

Table 5. Derived Behavioural Dimensions of Youth Engagement in Adaptive Reuse Environments

Comparison aspect	Central Market	REXKL
Shared behavioural repertoire	All seven categories documented	All seven categories documented
Spatial organisation of activity	Indoor–outdoor circulation and retail areas, including Kasturi Walk	Multi-level indoor creative and communal nodes
Weekday to Labour	Broader spatial dispersion on Labour Day	More concentrated activity around

Day pattern		established nodes on Labour Day
Evidence limitation	Observed distribution, not standardised participation rates	Observed distribution, not individual dwell times or motivations

3.4 Discussion - Spatial Organisation and Patterns of Youth Engagement

The comparison indicates that youth engagement occurred in both heritage settings but followed different spatial patterns. At Central Market, observed activities extended across internal commercial corridors, entrances and Kasturi Walk, with a broader distribution during the public holiday. At REXKL, activities remained more concentrated around the bookstore, cafés, exhibition areas and communal spaces across multiple levels, while the public holiday primarily intensified these existing clusters. These differences suggest that similar forms of engagement can be organised differently within adaptively reused buildings, depending on the arrangement of circulation spaces and activity nodes.

Environment-behaviour studies emphasise the role of entrances, circulation and opportunities to pause in shaping public-space use (Whyte, 1980; Gehl & Svarre, 2013). The present observations are consistent with this perspective, but also distinguish between spatially dispersed engagement at Central Market and more clustered engagement at REXKL. Strolling and resting were recorded at both sites; however, the maps document where these behaviours occurred rather than establishing users' motivations or duration of stay. Since the sites were observed at different clock times, the comparison should be interpreted as a contextual contrast, not as evidence that one spatial configuration caused greater engagement.

3.5 Discussion - Functional Contexts and Youth Participation

Across both cases, social interaction, consumption and cultural participation accompanied the use of commercial and shared spaces, yet their immediate settings differed. Central Market combined craft and souvenir retail, food-related activities and the street-oriented commercial environment of Kasturi Walk. REXKL brought together bookstores, cafés, exhibitions and event-related spaces within a compact multi-level building. The photographic records therefore show common behavioural categories expressed through distinct functional settings, rather than an identical pattern of participation across the two cases.

This comparison extends public-life arguments that active places offer opportunities for everyday encounters and varied uses (Whyte, 1980; Gehl, 2010; Oldenburg, 1999). For adaptive reuse, the implication is not that one programme is universally preferable, but that different combinations of accessible spaces and activities can accommodate youth participation. The evidence supports attention to the relationship between spatial layout and programme mix when planning heritage reuse, while remaining insufficient to determine whether visitors experienced stronger cultural attachment or preferred one site over the other.

3.6 Discussion - Implications for Context-sensitive Adaptive Reuse

Digital engagement and entrepreneurial-related activities were observed in both Central Market and REXKL, alongside their respective retail, cultural and communal uses. Photography, video recording and interaction with creative or small-scale commercial settings show how contemporary activities coexist with heritage-oriented functions. These observations do not, by themselves, establish online dissemination, business ownership or entrepreneurial intention; rather, they identify visible forms of participation that merit consideration in youth-oriented reuse planning.

Taken together, the cross-case findings point towards context-sensitive adaptive reuse strategies. At Central Market, attention to the links between internal circulation and adjacent street-oriented spaces may help accommodate distributed patterns of use. At REXKL, the relationship between vertical circulation and concentrated creative or communal activity nodes is particularly relevant. Both cases illustrate the value of providing opportunities for strolling, resting, social exchange and cultural or commercial participation without assuming that a single spatial model will produce the same outcomes in every heritage building. The study is limited by its two-site scope, short observation window and differing site-specific observation times; further research combining comparable observation periods with visitor accounts could test these interpretations more fully.

4. CONCLUSION

This study examined youth engagement in two adaptively reused heritage buildings in Kuala Lumpur through systematic behavioural observation and cross-case comparison. Behavioural mapping at Central Market and REXKL documented seven recurring categories of observable activity: strolling, resting, social interaction, consumption, cultural participation, digital engagement, and entrepreneurial-related activities. Although these behaviours were evident in both settings, their spatial distribution and concentration differed. At Central Market, activities extended across internal commercial routes, entrances, and the adjoining Kasturi Walk, with wider spatial dispersion during the public holiday. At REXKL, activities remained more concentrated around interconnected creative, cultural, and communal spaces across multiple levels, with the public holiday primarily intensifying existing activity clusters. The comparison therefore identifies both shared behavioural characteristics and context-specific patterns of youth engagement, rather than treating either site as representative of all adaptive reuse environments.

These differences highlight the relevance of spatial organisation and functional programming to the ways young people use heritage places. Central Market's combination of indoor retail corridors and an adjoining pedestrian-commercial environment was associated with activities distributed across interior and street-oriented spaces. REXKL's concentration of bookstores, cafés, exhibitions, and gathering areas was associated with more localised clusters of social and cultural activity. Importantly, these associations should not be interpreted as causal effects of design, particularly because the sites were observed at different times of day. Instead, the comparative findings suggest that youth-responsive adaptive reuse should be sensitive to each building's spatial configuration and mix of uses. Planning and design responses may therefore need to address circulation and connections with surrounding streets in one setting, while supporting accessible communal nodes and links between levels in another. Across both cases, opportunities for cultural, digital, and commercial participation complement the everyday use of heritage spaces without requiring a uniform model of engagement.

The study contributes to adaptive reuse research by demonstrating how a common observational protocol can reveal similarities and differences in youth engagement across contrasting heritage environments. Unlike approaches based solely on reported perceptions, behavioural mapping provides spatially situated evidence of activities as they occur; cross-case analysis adds an understanding of how comparable behaviours are expressed in different settings. For planners, architects, and heritage managers, the findings offer a practical basis for developing context-sensitive, youth-oriented reuse strategies that connect heritage conservation with contemporary public life. Nevertheless, the study covers only two Kuala Lumpur sites, one weekday and one public holiday, and different site-specific observation hours. Apparent-age classification, a single observer, and the absence of interviews or duration measures further limit claims about motivations, representativeness, and length of stay. Future research could combine matched observation periods, repeated visits, and participant accounts across additional heritage typologies to test the transferability of these comparative patterns. Ultimately, the findings suggest that the continuing relevance of reused heritage places depends not only on conserving historic fabric but also on accommodating diverse forms of everyday youth participation in ways appropriate to each setting.

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AUTHOR CONTRIBUTIONS

Peng YAN: conceptualization, study design, drafting of the manuscript, investigation.

Nor Zalina Binti Harun: supervision, methodology, data analysis, final approval of the manuscript.

Muhamad Solehin Fitry Rosley: supervision, writing—review & editing.

Nor Haslina Binti Ja`afar: data Curation, formal analysis.

Wei WANG: data analysis, figure visualisation.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICS STATEMENT

Ethical approval was not required for this study.

DATA AVAILABILITY STATEMENT

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

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FIGURE LEGENDS

Figure 1. Location of the Study Sites.

Figure 2. The single-storey Central Market situated on the present site circa 1900s.

Figure 3. The relation between Central Market and Kasturi Walk (the outdoor pedestrian lane).

Figure 4. The original REX Theatre (1947-1972).

Figure 5. The location and interior space of REXKL.

Figure 6. Weekday behavioural mapping of observable youth engagement in Central Market.

Figure 7. Labour Day behavioural mapping of observable youth engagement in Central Market.

Figure 8. Weekday behavioural mapping of observable youth engagement in REXKL.

Figure 9. Labour Day behavioural mapping of observable youth engagement in REXKL.

Figure 1



Source: https://www.google.com/maps; Relabeled by author (2026)

Figure 2



Source: Moore (2004)

Figure 3



Source: Author (2026)

Figure 4



Source: https://rxpkl.com/venue-history/

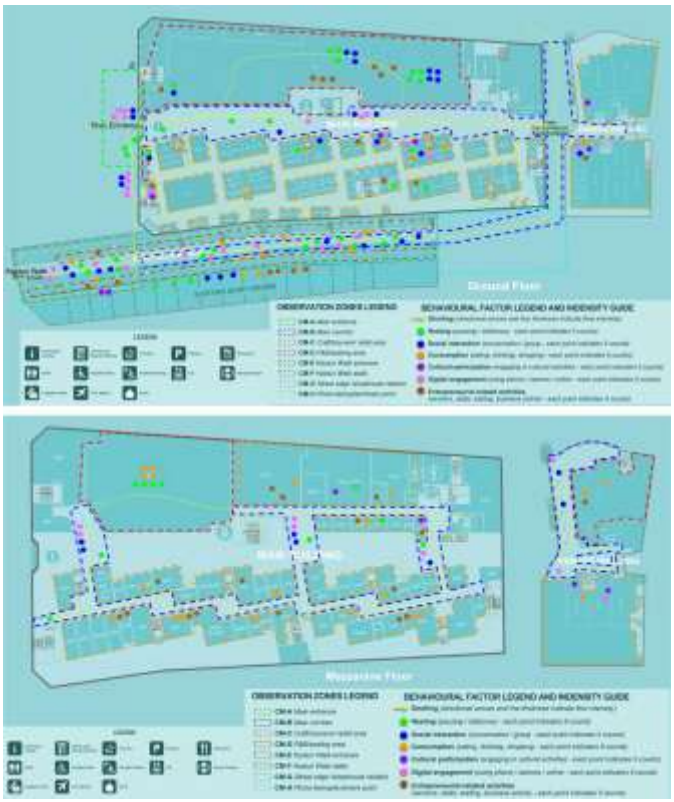
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Figure 5



Source: https://interiors.jidipi.com/j00107142/en/rexkl-arts-space-and-community-hub-; Relabeled by author (2026)

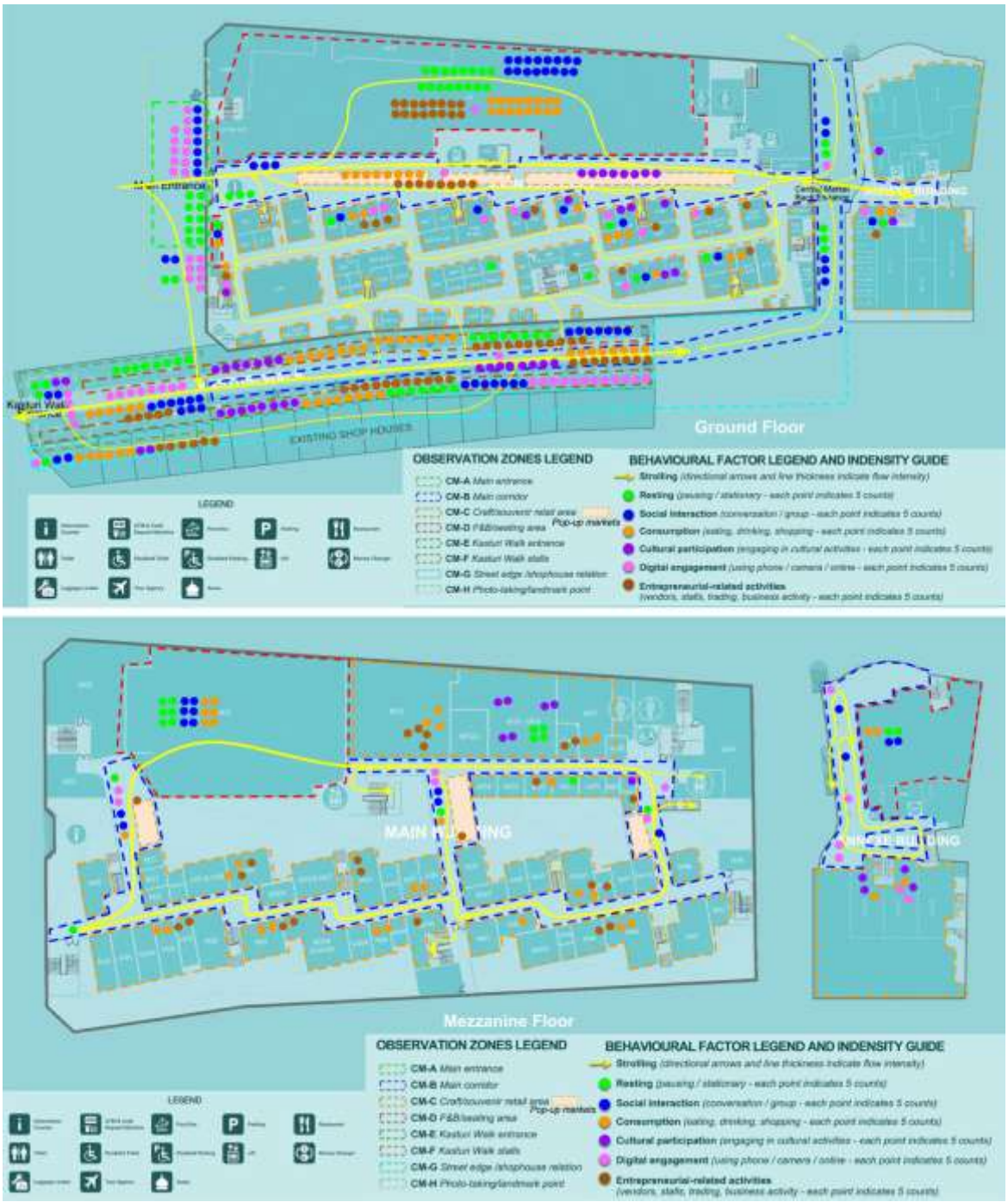
Figure 6



Source: https://centralmarket.com.my/floor-map/; Relabeled by author (2026)

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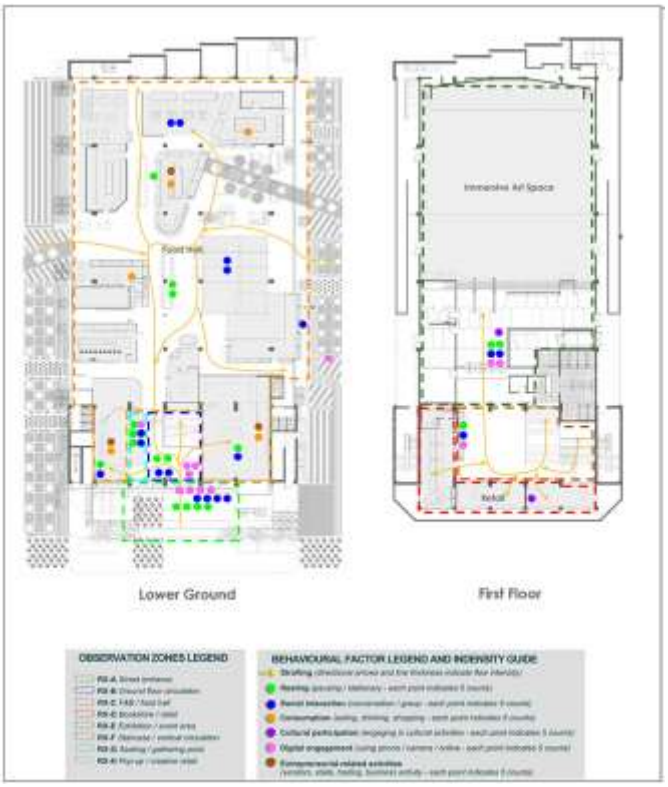
Figure 7



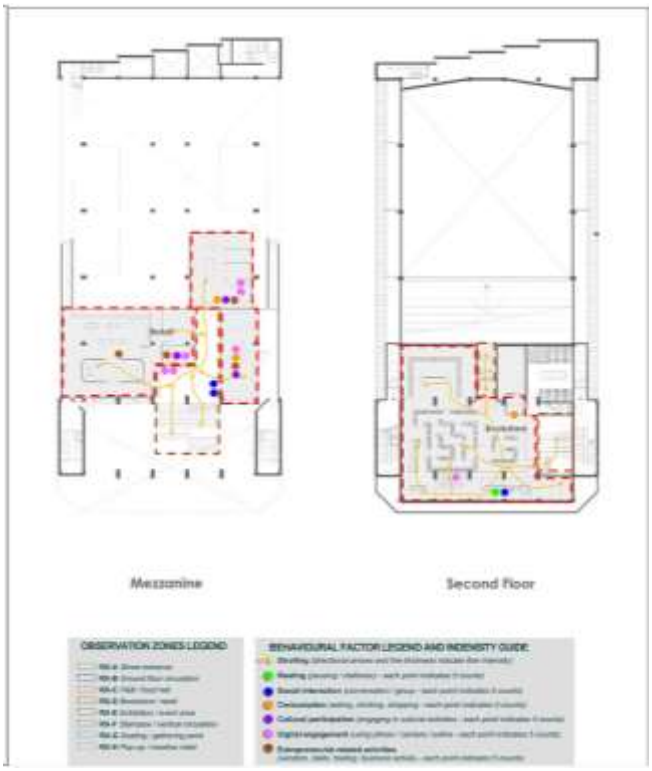
Source: https://centralmarket.com.my/floor-map/; Relabeled by author (2026)

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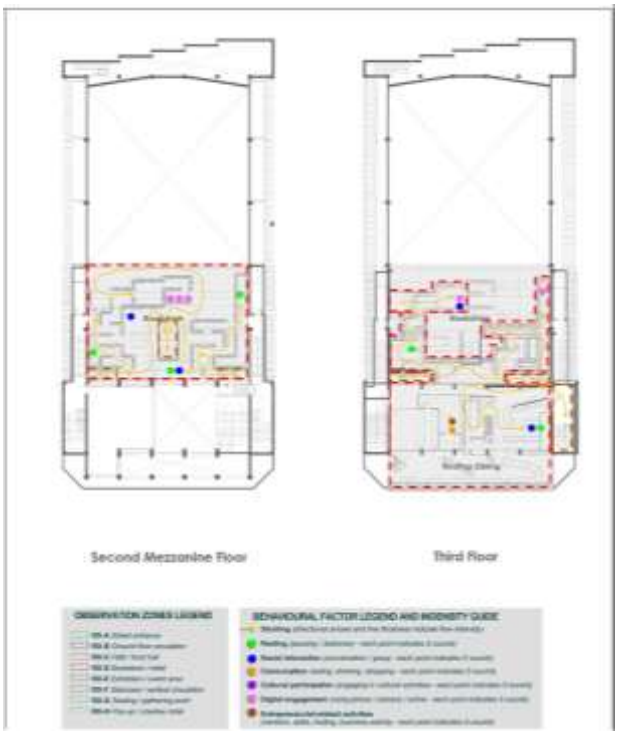
Figure 8



(a)



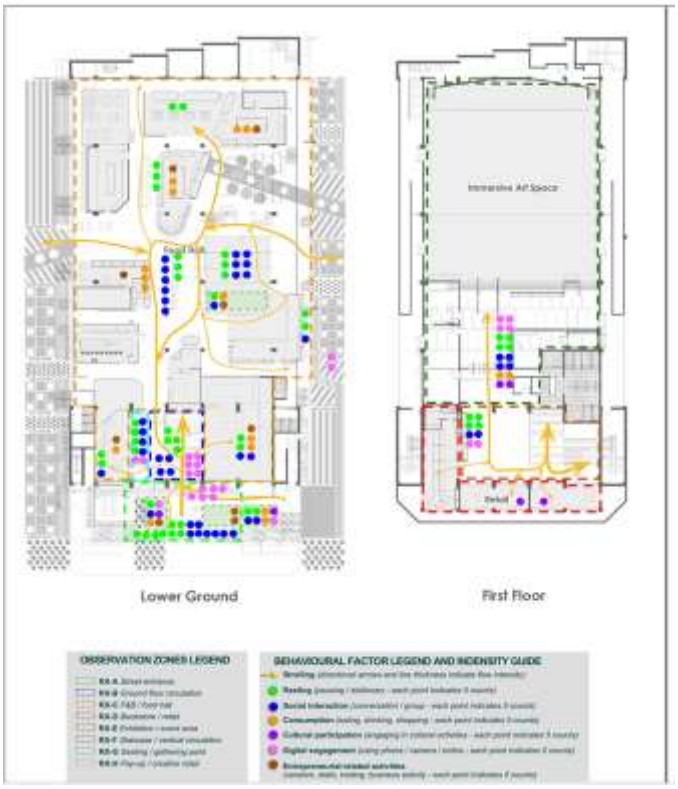
(b)



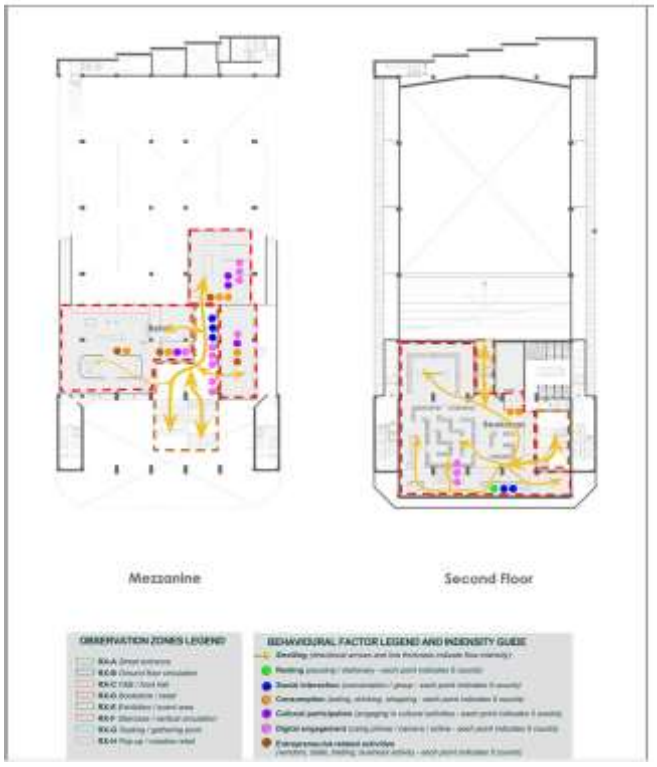
(c)

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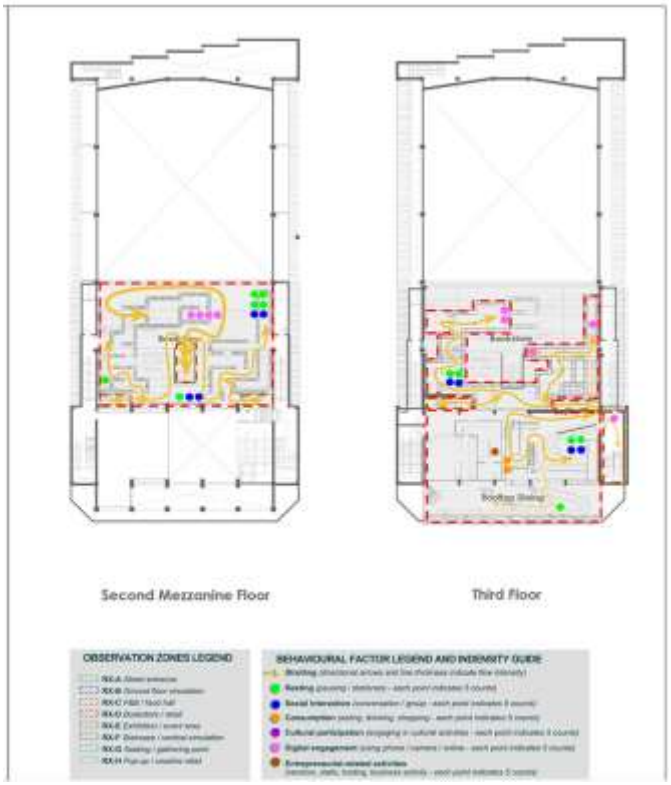
Figure 9



(a)



(b)



(c)

Source: https://interiors.jidipi.com/j00107142/en/rexkl-arts-space-and-community-hub-; Relabeled by author (2026)