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Exploring the Impact of the Octalysis Gamification Framework within Traditional Chinese Handicraft Education: A Case Study of Xiangxi Blue Calico

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ABSTRACT

The study examines the application of the Octalysis Gamification framework to enhance student engagement and learning in Chinese handicraft education, specifically focusing on Xiangxi Blue Calico, a traditional Chinese handicraft known for its intricate patterns. **Purpose**: This study aims to investigate the impact of the Octalysis gamification framework on the preservation of traditional crafts, specifically Xiangxi Blue Calico. **Method:** The study utilizes a quantitative approach to collect the primary data and a qualitative approach to collect secondary data. The primary data was collected through an online questionnaire survey from 70 students of Hunan Institute of Science and Technology. The statistical package program (SPSS) was used for the primary data to analyze the responses. On the contrary side, the secondary data was collected from different databases to analyze the case study of Xiangxi Blue Calico through the lens of the Octalysis gamification framework. **Findings:** The study demonstrates a positive correlation between the variables. The Cronbach's Alpha values for the scales indicate strong internal consistency: Student Engagement ($\alpha = .868$), Octalysis Gamification ($\alpha = .884$), and Traditional Chinese Handicraft Education ($\alpha = .924$). There is a significant correlation between Student Engagement, Octalysis Gamification, and Traditional Chinese Handicraft Education ($p < 0.01$). Furthermore, the secondary data demonstrate how the use of Octalysis gamification aids students in understanding the cultural importance of Xiangxi Blue Calico. **Implications:** The research outcomes are relevant to educators and curriculum designers in the field of cultural education. They provide insights into strategies for promoting increased engagement. Furthermore, the Octalysis gamification framework can be utilised by stakeholders in heritage preservation to effectively engage a wide range of students and maintain cultural appreciation.

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Introduction

The integration of traditional Chinese handicrafts with modern educational concepts has resulted in a notable transformation, particularly through the adoption of gamification models like Octalysis. The fusion of pedagogy and traditional Chinese handicrafts, such as the Xiangxi Blue Calico case, has significantly impacted the educational landscape by incorporating cultural significance. The Octalysis framework, proposed by Yu-Kai Chou, is a useful tool for understanding and enhancing engagement and motivation across various fields of study (Elequin, 2016). The Framework identifies eight core drives that can be strategically utilised to enhance participation in learning activities. These core drives include epic meaning and calling, development and accomplishment, empowerment of creativity and feedback, ownership and possession, social influence and relatedness, scarcity and impatience, unpredictability and curiosity, and loss and avoidance. The transformative power of gamification has been emphasised in recent research by Bouchrika et al. (2021), which also supports the notion that increased engagement leads to improved learning.

Furthermore, Putranti et al. (2024) research indicates that intrinsic motivation, a central concept in Octalysis, plays a crucial role in fostering sustained engagement and skill development. Xiangxi Blue Calico can serve as an illustrative example for examining the integration of Octalysis into traditional handicraft education programmes from a historical perspective. The paradigm of instructing this art form can be transformed by mobilising Octalysis' eight core drives, including sense of accomplishment, empowerment, and social influence. The integration of achievement tracking into the learning process exemplifies how Octalysis can motivate learners to become proficient in all aspects related to the context of the case Xiangxi Blue Calico. Kopcha et al. (2016) emphasised that gamification enhances students' sense of competence and satisfaction, motivating them to actively participate in acquiring new skills. The application of Octalysis in Xiangxi Blue Calico education is consistent with modern educational psychology.

Integrating Octalysis into the education of Xiangxi Blue Calico increases learners' intrinsic motivation. In this regard, Chen et al. (2023) also point out that Octalysis uses its social influence drive to build pools of collaborative learning in which members share their knowledge and experiences. Moreover, Octalysis gamification places on social elements bear witness to its ability in promoting a sense of community and shared participation. In Xiangxi Blue Calico's world education environment, this expresses itself in shared workshops or online communities of practice where participants can support each other and achieve their learning goals. Furthermore, the utilisation of Octalysis in Xiangxi Blue Calico education aids in addressing the challenge of maintaining the interest and engagement of younger generations. This approach utilises Octalysis' three core drives of autonomy, social relatedness, and curiosity (Hulsey, 2019) to address the issue of maintaining interest among young individuals. The Octalysis framework aligns the learning process with intrinsic motivations, allowing for the transmission of essential knowledge from previous generations with a renewed sense of vitality. The combination of Octalysis and teaching Xiangxi Blue Calico has implications beyond pedagogical revisions, highlighting the potential for cultural preservation in contemporary education.

Problem statement

While numerous studies have explored the application of the Octalysis gamification framework in educational institutions and compared its effects on traditional teaching methods, there remains a research gap in applying this framework to traditional Chinese handicraft education. Oliver (2017) has demonstrated the potential of gamification in modifying student behaviour and fostering positive outcomes. However, this exploration has only been preliminary. In-depth research is needed to explore the application of gamification principles, particularly the Octalysis framework, to traditional Chinese handicrafts like Xiangxi Blue Calico. The problem statement is how the Octalysis gamification framework can engage students through its cores in the context of Xiangxi Blue Calico's case. This study aims to investigate the potential benefits of using the Octalysis gamification framework to engage students in traditional Chinese handicraft education, focusing on the case of Xiangxi Blue Calico.

Research Objectives

- To investigate the impact of the Octalysis Gamification Framework on student engagement patterns pertinent to traditional Chinese handicraft education within the context of Xiangxi Blue Calico.
- To assess the pivotal role of the Octalysis Gamification Framework in students' learning of the cultural significance and desirability of Xiangxi Blue Calico.

Research Questions

1. What is the impact of integrating the Octalysis Gamification framework on student engagement in teaching Xiangxi Blue Calico, a traditional Chinese handicraft?
2. What is the role of the Octalysis Gamification framework in facilitating students' comprehension of the cultural significance and desirability of Xiangxi Blue Calico in their learning process?

Significance of the Study

The study holds significance in multiple aspects. This study examines the impact of integrating the Octalysis Gamification framework on student engagement, focusing on the case of Xiangxi Blue Calico. Additionally, the study evaluates the impact of integrating this framework on students' approach to Xiangxi Blue Calico. The recognition of these trends has the potential to transform pedagogical methods and enhance student enthusiasm for preserving this cultural legacy. Therefore, this research can enhance educational practices and ensure the preservation of Chinese handicrafts, particularly in the context of Xiangxi Blue Calico.

Literature Review

Octalysis Framework

The Octalysis Framework is a widely applicable gamification model. In 2003, Yu-Kai Chou developed a gamification model that incorporates all eight core drives that stimulate

human activity (Marisa et al., 2020). The Octalysis Framework encompasses eight core drives, such as Epic Meaning for a sense of purpose and Development for seeking accomplishments. The principles of empowerment, possession, relatedness, and scarcity are depicted pictographically in Figure 1. The Octalysis framework is significant because it utilises intrinsic motivators such as achievement, control, power, and social influence to enhance behavioural stimulation. Kian et al. (2022) demonstrated how the incorporation of game-like features on digital platforms can enhance user engagement. The Octalysis gamification framework provides additional insight into human motivation and enhances user experience. The Octalysis framework is a strategic tool that helps establish connections with users by appealing to their innate desires, resulting in increased engagement and desired outcomes.

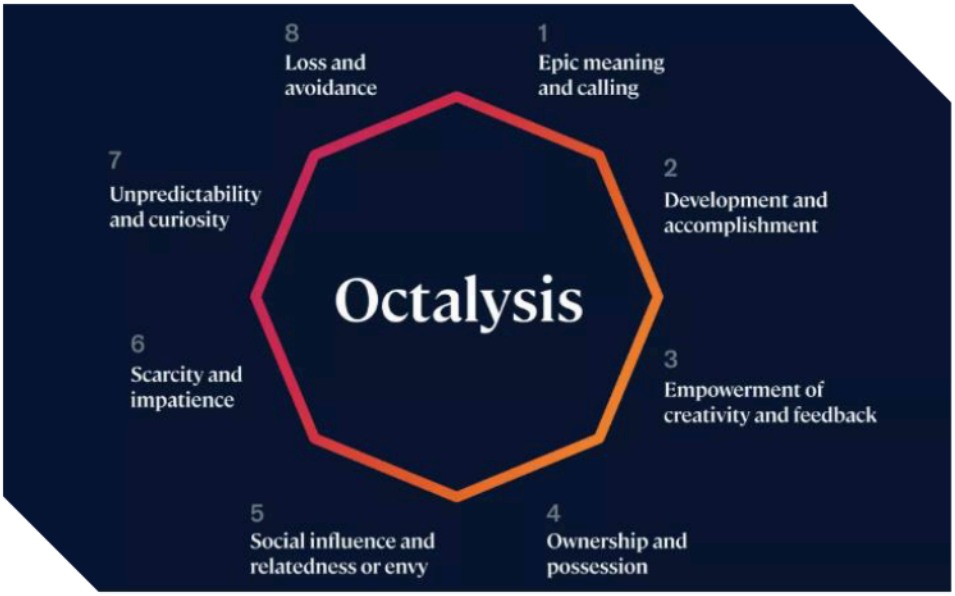

Figure 1: 8 Cores of Octalysis Framework. Source: Chou, (2019)

Xiangxi Blue Calico

Xiangxi blue calico is renowned in Chinese tradition for its printing and dyeing techniques, as well as its attractive decoration such as shown in the figure 2 below. Lee and Sohn (2011) argued that Xiangxi blue calico serves as both a symbol of the passage of time and a record of centuries of artistic achievement in China. The blue calico fabric is extensively distributed throughout China, with Xiangxi, Hunan Province being one of its primary production regions. In this area, the Miao ethnic culture shares a common cultural heritage and lifestyle affinity with the blue calico fabric. Zhang (2022) highlighted the meticulousness of Xiangxi Blue Calico's production process, which encompasses various stages such as design sketching and cloth dyeing. These artefacts contain ancient Chinese wisdom passed down over millions of years. The Chinese flag holds cultural and artistic significance, representing both traditions and art history.

Figure 2: Blue Calico handicraft. Source: Alamy Limited (2015)

Impact of Octalysis Framework on Student Engagement and Learning

The Octalysis Framework, a holistic gamification model, has a direct and significant impact on student participation in various learning contexts. Sulispera and Recard (2020) conducted research on the Framework and highlighted its effectiveness in enhancing user interaction in online settings by leveraging elements aligned with Octalysis. This framework has broad implications for student engagement patterns within specific educational contexts, rather than just affecting individual components in isolation. The Octalysis core driver of Development & Accomplishment is a highly motivating factor for students. Rao (2022) has demonstrated the positive effects of the Framework on learner motivation and content mastery. By emphasising the significance of achievement, individuals can effectively monitor the acquisition of new ideas and set goals along their learning path. This approach enables them to become more focused on making progress and maintaining forward momentum. The Empowerment of Creativity & Feedback aspect plays a crucial role in determining the level of engagement. The inclusion of creative instructional moments and repetition is consistent with the findings of Mu's (2023) study, which emphasises the significance of feedback mechanisms in enhancing engagement in learning. The Octalysis Framework's Social Influence & Relatedness drive fosters student cooperation and interaction to enhance engagement through participation. The study conducted by Jonathan and Recard (2021) emphasised the significance of social factors in gamification. Human interaction motivates participants to engage and demonstrate commitment.

Furthermore, the Octalysis core motivator of Epic Meaning & Calling, which involves using actions to create meaning and enhance one's value, also influences engagement. Recent studies by Marisa et al. (2020) have emphasised the importance of explicitly linking

learners' goals with broader society or culture to promote student participation and self-motivation. When students perceive their studies as serving a greater purpose, such as contributing to social change or cultural preservation, their enthusiasm tends to increase. The Ownership and Possession drive of the Framework for Social Change can foster a sense of responsibility. This, in turn, influences engagement relationships. Duarte and Cruz (2018) found that student performance improves when they are granted autonomy. Students must assume responsibility for the learning process to foster engagement. Allowing students to have control over their curriculum fosters a sense of ownership and promotes sustained motivation. The Octalysis Framework provides valuable concepts for enhancing student interest in class by understanding various fundamental motivations. Furthermore, pluralism in education provides increased motivation, engagement, and a wider range of options for students with diverse preferences. Within this diverse academic environment, there is still room for further learning. The Octalysis Framework is a valuable method for promoting meaningful learning environments in all areas, thanks to its flexible nature and focus on educational value for humanistic purposes.

Cultural Learning in Traditional Craft Education

In the domain of cultural learning, traditional craft education is a manifestation of heritage preservation and educational enrichment. Schroeder et al. (2015) emphasised the significance of traditional crafts in representing a current cultural identity and historical depth. These crafts symbolise the transmission of cultural heritage and skills across generations. Lin (2020) investigated the educational value of cultural learning. Engaging in traditional crafts activities can contribute to the development of a sense of identity and value, fostering cross-cultural awareness. Engaging in practical exercises related to traditional industries enhances participants' technical skills and fosters an appreciation for diverse cultural traditions. Furthermore, Kisida et al. (2020) showed that incorporating these cultural elements into education increases students' interest in participation. The inclusion of cultural stories that are closely tied to traditional crafts in the curriculum can effectively engage students and enhance their learning experience. Moreover, according to Croft et al. (2015), cultural relevance serves as a reminder to individuals that they are being discussed and motivates them to take action. When students are taught the educational value and cultural meaning behind various subjects, in addition to their traditional skills, and this approach is combined with a Focus learning approach, they can benefit even more from these opportunities. Cultural learning in traditional craft education extends beyond mere skill acquisition, as it involves a reflective exploration of heritage, identity, and values. This enriches students' educational experiences.

Experiential Learning Theory

David Kolb proposes the theory of experiential learning. This theory is grounded in the belief that learning is a continuous process that relies on both experience and reflection. According to McCarthy (2010), the theory consists of four stages: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation. The stages are depicted in Figure 3. The theory involves a progression from practical experiences to reflection, conceptualization, and finally application of these concepts in real-world situations. The effectiveness of this learning cycle was validated in a study

conducted by Syatriana et al., (2023). Kolb's research demonstrated that medical students who engaged in clinical care and subsequently reflected on their learning outperformed their peers who received traditional instruction. Kolb's theory acknowledges the cyclical nature of learning. Reflection and active engagement are crucial for comprehending knowledge in a specific field or effectively applying it to a different area of study.

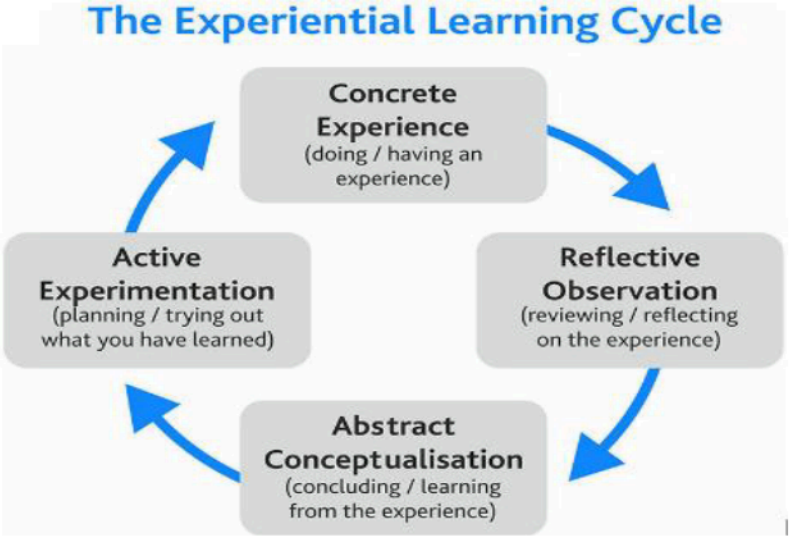

Figure 3: Kolb's Cycle. Source:Aliu et al. (2023)

Applicability of Experiential Learning Theory

This study is connected to the Experiential Learning Theory, specifically examining the impact of Octalysis on students' experiences in traditional Chinese Handicraft education. Morris (2020) outlined Kolb's focus on learning from situated experience, reflective observation, abstract conceptualization, and active experimentation. The Octalysis Framework was used to analyse patterns of student participation in cultural learning by incorporating reflection and experimentation. Therefore, the application of Experiential Learning Theory can be advantageous in assessing how the Octalysis framework promotes understanding and utilisation of cultural significance and desirability in traditional Chinese Handicraft education. This aligns with the research objective of analysing the impact of the Octalysis Framework on cultural learning experiences.

Literature Gap

An unaddressed research gap exists in the literature regarding the explicit examination of the Experiential Learning Theory's applicability in understanding the impact of the Octalysis Framework on student engagement in traditional Chinese Handicraft education. Rao (2022) extensively examined the importance of the Octalysis Framework in relation to student learning. However, there is a lack of direct research linking this framework to Kolb's theory of experiential learning in the context of cultural education. This study seeks to apply Experiential Learning Theory to investigate how the Octalysis Framework

influences student engagement in traditional Chinese Handicraft education.

Conceptual Framework

The dependent, independent and mediating variables are of the study are given below in the figure 4.

Figure 4: Conceptual Framework for Quantitative Part

Methodology

Research Design

The study's research design strategically incorporates the Octalysis Gamification Framework to achieve the specified objectives. The quantitative research process for Objective 1 involves using a structured questionnaire survey to examine student engagement patterns in traditional Chinese handicraft education, specifically focusing on Xiangxi Blue Calico. The Octalysis Gamification Framework is used to analyse and interpret the impact on student engagement. The use of a quantitative approach allows for a systematic examination of the influence of the framework on the identified patterns.

Objective 2 is analysed using the qualitative research approach. This study employs a qualitative approach to assess the cultural significance and desirability of Xiangxi Blue Calico. This case study of Xiangxi Blue Calico is analysed using the Octalysis Gamification Framework. The qualitative analysis is closely linked to the Octalysis Gamification Framework for examining its influence on students' perceptions and experiences of learning cultural knowledge in traditional Chinese handicraft education, specifically Xiangxi Blue Calico.

Research Sample

The research sample for this study is specifically selected to align with the study's objectives. The study involves 70 students from Hunan Institute of Science and Technology, in alignment with Objective 1, which utilises a quantitative approach. The study employs purposive sampling to select participants from Hunan Institute of Science and Technology. The sample size is chosen to evaluate the influence of the Octalysis

Gamification Framework on student engagement in traditional Chinese handicraft education, with a specific focus on Xiangxi Blue Calico.

Simultaneously, objective 2 includes a qualitative component within the research. This study examines the Xiangxi Blue Calico case using the Octalysis gamification framework. This framework has a significant impact on students' perceptions and learning experiences in traditional Chinese handicraft education, specifically in relation to cultural significance and desirability, such as Xiangxi Blue Calico.

Research Instruments and Procedure

An online survey was conducted using Google Forms with the participation of students from the Hunan Institute of Science and Technology. Vehovar and Manfreda (2017) highlighted the significance of the effective utilisation of online surveys as a crucial tool in research. This study utilised a qualitative methodology focused on Xiangxi Blue Calico. It involved analysing secondary sources from databases such as Google Scholar, Scopus, and Web of Science (WoS). The article was retrieved using a keyword strategy. The databases were searched using relevant keywords to examine the Xiangxi Blue Calico case.

Data Analysis

The Data Analysis phase of this study combines quantitative and qualitative approaches to gain comprehensive insights, aligning with the study's dual objectives. The quantitative results of the survey for Objective 1 were subjected to rigorous statistical analysis using SPSS. Descriptive statistics, including frequencies, were calculated to generate frequency tables that summarised ranges and means. The examination involved exploring correlations, performing regression analysis, and conducting reliability tests. This study utilised a quantitative approach to investigate the influence of the Octalysis Gamification Framework on student engagement in traditional Chinese handicraft education.

Similarly, Objective 2 involved a qualitative analysis conducted using the case study approach. The secondary materials reviewed critically for this study included historical documents and related sources on Xiangxi Blue Calico. This qualitative exploration was instrumental in uncovering the cultural and educational dimensions of Xiangxi Blue Calico, despite relying on existing materials. The inclusion of the Octalysis Gamification Framework enhances the credibility of this qualitative study by providing a more detailed understanding of the cultural relevance and popularity of traditional Chinese handicraft education, specifically in the case of Xiangxi Blue Calico.

Findings

The study employs both quantitative and qualitative methods to analyse the research objectives. It uses a questionnaire survey to collect data from 70 students enrolled in Hunan Institute of Science and Technology. The questionnaire includes questions about the impact of the Octalysis Gamification Framework on student engagement, specifically in the context of the Xiangxi Blue Calico case study. The collected responses were analysed using SPSS to examine the relationship between independent, dependent, and mediating

variables. In contrast, the qualitative study employed a case study approach to examine the impact of the Octalysis gamification framework on student learning of the Xiangxi Blue Calico case. The study found that the framework had a positive and significant effect on student learning.

The questionnaire for this study uses a Likert 5-point scale to evaluate different aspects of student engagement. It aims to understand the effects of the Octalysis Gamification Framework on Traditional Chinese Handicraft Education, specifically focusing on the case of Xiangxi Blue Calico. The survey starts by asking participants about their age, gender, and the institution they belong to. The main body of the questionnaire is organised based on three important variables: The study focuses on the relationship between student engagement, the Octalysis Gamification Framework, and traditional Chinese handicraft education. The variables consist of statements that assess different aspects related to the research study's focus on the educational influence of gamification and traditional handicraft teaching methods on students' involvement and appreciation for Xiangxi Blue Calico. The meticulous organisation of these components in our questionnaire is essential for collecting valuable data to substantiate the research hypotheses, as depicted in the figure 5 and table 1 provided.

Figure 5: Questionnaire Overview

Questionnaire Structure on the Impact of Octalysis Gamification on Student Engagement in Traditional Chinese Handicraft Education. The Demographics and the variable are described below in the table 1.

Table 1

Demographics and Variable

Section	Content	Options
Demographics	Age	18-20 or 21-22 or 23-24
	Gender	Male or Female
	Institution Name	
Dependent Variable: Student Engagement	The implementation of Octalysis Gamification significantly increased the interest of young students in Xiangxi Blue Calico.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	Active participation of young students in traditional Chinese handicraft sessions are motivated by the use of Octalysis Gamification.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	Compared to traditional teaching methods, Octalysis Gamification notably enhanced the engagement of young students in learning about Xiangxi Blue Calico.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
Independent Variable: Octalysis Gamification Framework	The Octalysis Gamification elements made the learning process about Xiangxi Blue Calico more enjoyable and stimulating for young students.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	Understanding and retaining knowledge about traditional Chinese handicraft were facilitated more effectively for young students by the Octalysis Gamification elements.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	The Octalysis Gamification framework encouraged active participation of young students in learning activities related to Xiangxi Blue Calico.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
Mediating Variable: Traditional Chinese Handicraft Education	Traditional Chinese handicraft education significantly influenced young students' understanding and appreciation for Xiangxi Blue Calico.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	In comparison to modern approaches, traditional teaching methods for this handicraft enhanced the engagement of young students in learning.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree
	The inclusion of traditional Chinese handicraft education positively affected young students' perception and interest in the cultural significance of Xiangxi Blue Calico.	Strongly Agree or Agree or Neutral or Disagree or Strongly Disagree

In the given sample of 70 respondents, the majority of individuals, 55.7%, are male,

while the remaining 44.3% are female as illustrated in the table 2 below. The data reveals a greater number of males in the surveyed population, with 39 males and 31 females. Even though there are more males than females, both genders make significant contributions, resulting in a relatively equal distribution in the sample. The distribution is also shown in the figure 6 below.

Table 2

Frequency Table

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	39	55.7	55.7	55.7
	Female	31	44.3	44.3	100.0
	Total	70	100.0	100.0	

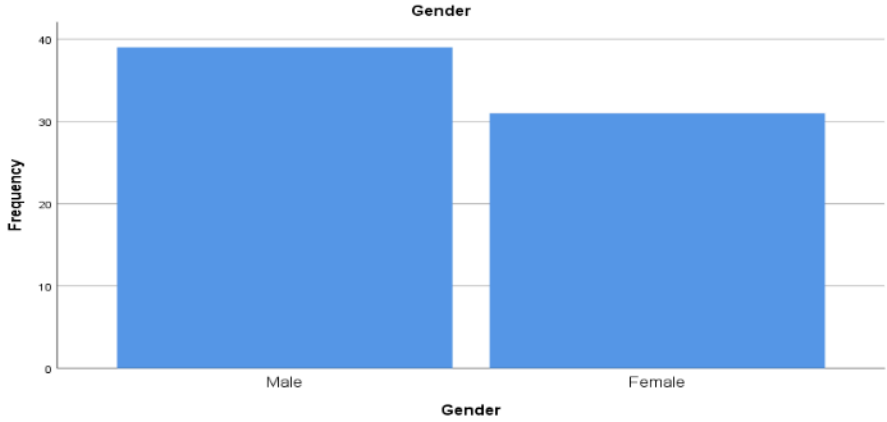

Figure 6: Gender based Distribution of Respondents

The age distribution within the surveyed population of 70 respondents showcases a wide range of ages as depicted in the table 3 below. A significant portion of the participants, specifically those in the 18-23 age range, make up the majority of the respondents. This age bracket is represented by 40% (28 respondents) in the 20-22 age range and 25.7% (18 respondents) in the 22-23 age range. Based on the data, it is clear that there is a strong representation of individuals aged 18 to 22, with a notable majority falling within this age range.

Table 3

Cumulative Frequency Table

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-20 Years	28	40.0	40.0	40.0
	20-22 Years	18	25.7	25.7	65.7
	22-23 Years	24	34.3	34.3	100.0
	Total	70	100.0	100.0	

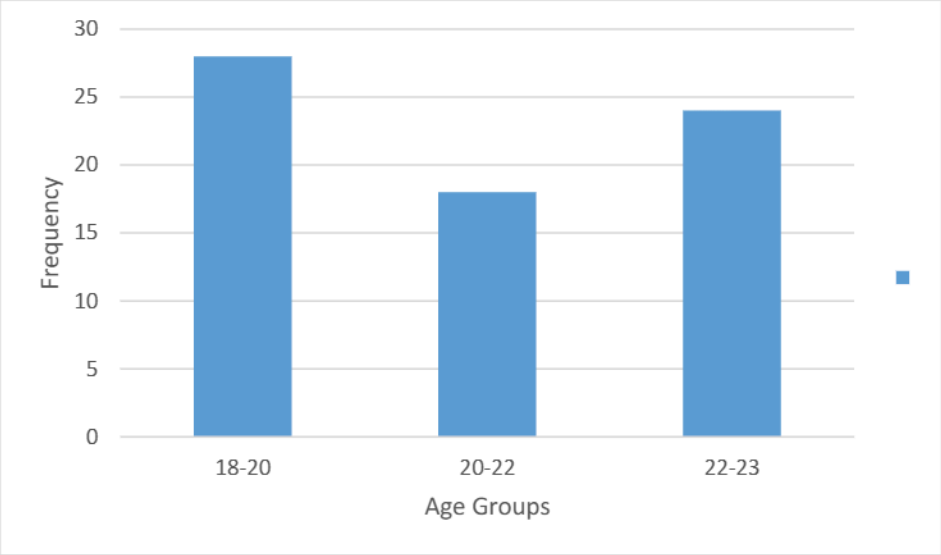

Figure 7: Age wise distribution

Reliability

The reliability statistics, measured by Cronbach's Alpha, provide insights into the internal consistency of the scales used in the study. The "Student Engagement" scale shows a high level of consistency among the three items measuring student engagement, with a Cronbach's Alpha value of 0.868 shown in the table 4.

Table 4

Scale: Student Engagement

Reliability Statistics	
Cronbach's Alpha	N of Items
.868	3

Similarly, the "Octalysis Gamification Framework" scale demonstrates strong internal consistency, recording a Cronbach's Alpha of 0.884 across its three items as illustrated in the table 5 below.

Table 5

Scale: Octalysis Gamification Framework

Reliability Statistics	
Cronbach's Alpha	N of Items
.884	3

Additionally, the "Traditional Chinese Handicraft Education" scale exhibits even higher internal consistency, with a Cronbach's Alpha of 0.924, indicating robust reliability among its three items depicted in the table 6. The high Cronbach's Alpha values above 0.7 for all three scales indicate that the items within each scale consistently measure the intended

constructs. How can we ensure that the study assessment accurately measures the key aspects of traditional Chinese handicraft education, student engagement, and the octalysis gamification framework to produce reliable results?

Table 6

Scale: Traditional Chinese Handicraft Education

Reliability Statistics	
Cronbach's Alpha	N of Items
.924	3

The analysis reveals a strong and highly significant relationship between the variables of Student Engagement, Octalysis Gamification Framework, and Traditional Chinese Handicraft Education. There are strong positive correlations between Student Engagement and both the Octalysis Gamification Framework ($r = 0.905$, $p < 0.01$) and Traditional Chinese Handicraft Education ($r = 0.873$, $p < 0.01$), as indicated by the coefficients of correlation as depicted in the table 7. Similarly, there is a strong positive correlation between the Octalysis Gamification Framework and Traditional Chinese Handicraft Education ($r = 0.893$, $p < 0.01$). These findings indicate that when Student Engagement increases, there is a significant rise in the use of the Octalysis Gamification Framework and participation in Traditional Chinese Handicraft Education. Furthermore, there is a strong correlation between the Octalysis Gamification Framework and Traditional Chinese Handicraft Education, suggesting that the incorporation of gamification elements has a substantial impact on the approach and engagement in traditional handicraft education.

Table 7

Correlation Analysis

Correlations				
		Student Engagement	Octalysis Gamification Framework	Traditional Chinese Handicraft Education
Student Engagement	Pearson Correlation	1	.905**	.873**
	Sig. (2-tailed)		.000	.000
	N	70	70	70
Octalysis Gamification Framework	Pearson Correlation	.905**	1	.893**
	Sig. (2-tailed)	.000		.000
	N	70	70	70
Traditional Chinese Handicraft Education	Pearson Correlation	.873**	.893**	1
	Sig. (2-tailed)	.000	.000	
	N	70	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis

Run MATRIX procedure:
********** PROCESS Procedure for SPSS Version 4.1 **********
Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3
****
Model : 4
Y : SE
X : OGF
M : TCHE
Sample
Size: 70
****
OUTCOME VARIABLE:
TCHE
Model Summary

R	R-sq	MSE	F	df1	df2	p
.8935	.7983	.1960	269.1678	1.0000	68.0000	.0000

Model

coeff	se	t	p	LLCI	ULCI
constant	.0011	.2355	.0047	.9963	-.4689	.4711
OGF	.9972	.0608	16.4063	.0000	.8759	1.1185

****
OUTCOME VARIABLE:
SE
Model Summary

R	R-sq	MSE	F	df1	df2	p
.9164	.8397	.1081	175.5373	2.0000	67.0000	.0000

Model

coeff	se	t	p	LLCI	ULCI
constant	.6455	.1749	3.6898	.0005	.2963	.9947
OGF	.5699	.1005	5.6691	.0000	.3692	.7705
TCHE	.2661	.0901	2.9549	.0043	.0864	.4459

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************
Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.5699	.1005	5.6691	.0000	.3692	.7705

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TCHE	.2654	.0868	.0777	.4250

************************ ANALYSIS NOTES AND ERRORS ************************
Level of confidence for all confidence intervals in output:
95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals:
5000
------ END MATRIX -----

Significant findings arise from this regression analysis that includes the variables Student Engagement (SE), Octalysis Gamification Framework (OGF), and Traditional Chinese Handicraft Education (TCHE). The analysis of the relationship between Traditional Chinese Handicraft Education (TCHE) and the Octalysis Gamification

Framework (OGF) yielded a strong correlation ($R = 0.8935$, R-squared = 0.7983, $p < 0.001$). An increase of one unit in OGF is associated with a 0.9972 unit increase in TCHE ($p < 0.001$). In the model evaluating Student Engagement (SE) as the outcome, both OGF and TCHE significantly predict SE ($p < 0.001$ and $p = 0.0137$, respectively). An increase of one unit in OGF is associated with a 0.5699 unit increase in SE, while a similar increase in TCHE is associated with a 0.2661 unit increase in SE. The indirect effect of OGF on SE through TCHE is 0.2654 (BootSE = 0.0868, $p < 0.001$), suggesting that OGF influences SE through TCHE in a mediated manner. These results indicate that both the Octalysis Gamification Framework and Traditional Chinese Handicraft Education have a direct and indirect influence on Student Engagement (SE), with TCHE partially mediating the relationship between OGF and SE.

Case study

The traditional Chinese handicraft known as "Xiangxi Blue Calico" embodies a significant portion of China's cultural heritage and craftsmanship as shown in the figure 8 below. Xiao (2022) highlights the Calico as a refined blue and white cloth originating from the culturally rich Xiangxi area in China. The art typically showcases intricate patterns and often portrays natural scenes or local folklore, drawing inspiration from ancient dyeing techniques. They embody a synthesis of historical, cultural, and artistic expertise. Zhang (2022) highlights that the skills necessary for producing Xiangxi Blue Calico involve a complex method of dyeing and printing on cotton fabric, which has been meticulously transmitted from one generation to another for centuries. This case study is esteemed by experts in art and culture for its aesthetic quality.

Figure 8: A traditional Chinese handicraft "Xiangxi Blue calico". Source: (Jessica, 2015)

Role of Octalysis Gamification Framework in Enhancing Students' Learning

The Octalysis Gamification framework is a powerful tool for fostering intrinsic motivation and engagement in student education. The literature discusses the strategic use of a comprehensive set of eight cores in this Framework, which creates an immersive

environment. This fosters curiosity, empowerment, and academic achievements among students. The deployment of such cores, as exemplified by Xiangxi Blue Calico, is particularly significant in cultural education as it enhances students' perceptions and understanding.

The first core, epic meaning and calling, pertains to the sense of purpose and belonging to a larger narrative. The incorporation of Xiangxi Blue Calico in the curriculum promotes students' connection with cultural heritage, enhancing their appreciation. The second fundamental is development and achievement, which motivates students to strive for progress. Chen et al. (2023) provide examples that demonstrate the influence of such factors on motivation and educational outcomes through the engagement of a sense of accomplishment in classrooms.

Moreover, the three core elements of empowerment, ownership, and scarcity (time) provide students with autonomy and control over their education, enabling them to acquire knowledge in their areas of interest more efficiently than their peers. Gellner et al. (2021) highlight the significance of empowerment in learning and its role in fostering student involvement and responsibility. These strategies, including collective ownership, raising awareness about the cultural value of Xiangxi Blue Calico, and using tactics like scarcity and impatience, serve to reinforce a sense of ownership and inspire curiosity and ongoing interest.

In addition, the three core concepts, namely social influence, unpredictability, and loss, are presented to students as interactive learning tasks with an element of surprise. This approach enhances students' interest in these concepts and their avoidance of pain or rejection in social interaction. Puspitariri (2021) emphasises the importance of social influence on participation and highlights the role of learning and motivation in peer engagement. At Xiangxi Blue Calico, the Octalysis structure is utilised to foster a culture of learning. By integrating elements of purpose, accomplishment, self-empowerment, and social relationships, a comprehensive approach can be developed. Students are studying the craft and its cultural implications.

Discussion

The findings indicate a significant positive correlation between student interest, the use of the Octalysis Gamification Framework, and participation in Traditional Chinese Handicraft Education (TCHE), specifically in the context of Xiangxi Blue Calico. The correlations provide insight into the relationship between active classroom participation, gamification approaches, and students' engagement with cultural education. Buckley and Doyle (2016) conducted studies that support these findings, indicating that the introduction of gamification elements in the learning environment positively impacts students' level of participation and motivation. The study's findings support the assertion that the Octalysis Gamification Framework can promote active student engagement. Moreover, the strong relationship observed between the Octalysis Gamification Framework and education aligns well with the findings of Christopoulos and Mystakidis (2023). This study demonstrates the potential impact of incorporating gamification elements into traditional cultural education on learners' attitudes towards it. The current research indicates that octalysis gamification involvement strategies are particularly effective in attracting

attention to Traditional Chinese Handicraft Education. These strategies engage students who are interested in learning about the cultural significance of Xiangxi Blue Calico. Furthermore, these observations closely align with Akella (2010) Experiential Learning Theory. According to Ha and Verishagen (2015), Kolb's theory is a conceptual framework that describes learning as a cyclical process involving concrete and active experimentation, reflective observation, abstract conceptualization, and the return to action. The strong positive correlations observed between student engagement and the Octalysis Gamification Framework, in conjunction with TCHE, demonstrate the practical application of this theory in educational settings.

The research shows a positive correlation between student engagement and the integration of gamification elements. The results align with the theoretical emphasis on concrete experience. Student involvement aligns with Kolb's notion that classroom interaction enhances experiential learning for students. Jääskä et al. (2022) conducted research on the impact of students' participation in a game-based learning environment on their attitudes towards education. The text discusses how active participation in gamified situations can enhance students' experiences, aligning with Kolb's theory that hands-on involvement increases learning outcomes. The study results establish a strong connection between the Octalysis Gamification Framework and Traditional Chinese Handicraft Education (Xiangxi Blue Calico) that aligns with the theoretical conceptualization in phase 2 of reflective observation. The incorporation of gamification prompts students to reflect on their learning process, thereby strengthening their engagement with conventional cultural education. Bouchrika et al. (2021) conducted a study that validates this research by examining the relationship between gamification and motivation in cultural education. The text discusses how the introduction of gamified elements promotes clearer thinking about learning among students, fostering a deeper integration between modern culture and traditional cultural education. This reflects aspects of Kolb's theory on reflective observation in his cycle for experience-based image thinking. Finally, there is a connection between the Octalysis Gamification Framework and TCHE. In sum, these results confirm the efficacy of engaging students in Chinese handicraft education; they support Octalysis Gamification and Traditional Chinese Handicraft Education systems as vectors for cultural learning experiences based on Experiential Learning Theory. Indeed, use of gamification techniques in schools seems well suited to Kolb's whole-person perspective on the four educational stages of experiential learning (active experimentation, reflective observation, conceptual integration and experimental application).

Conclusion

The integration of the Octalysis Gamification framework into Xiangxi Blue Calico in traditional Chinese handicraft education is a transformative pedagogical approach. This study examines the effects and significance of the Octalysis Gamification framework on student engagement and understanding of the cultural importance of Xiangxi Blue Calico. It aims to fill a crucial research gap in this area.

This study examines the influence of the Octalysis Gamification Framework on traditional Chinese handicraft education, specifically focusing on Xiangxi Blue Calico. An important aspect of this gamified approach is its ability to surpass traditional teaching methods, leading to increased intrinsic motivation and the development of a dynamic

learning community. The framework engages students in the learning process, promoting collaborative efforts to share ideas, methods, and experiences related to Xiangxi Blue Calico.

The Octalysis Framework's core driver is notable for its ability to generate intrinsic motivation and foster an interactive learning community, surpassing traditional teaching methods. The courses, such as 'Epic Meaning & Calling' and 'Empowerment of Creativity & Feedback', aim to involve students and foster an understanding of Xiangxi Blue Calico's cultural significance in their learning. The section highlights the impact of interventions that target 'Epic Meaning & Calling' and 'Empowerment of Creativity & Feedback' on learners' connection with their cultural heritage and personal involvement, which is often lacking in traditional approaches.

This study employs both quantitative and qualitative methodologies. Quantitative analysis is conducted using tools like SPSS, which reveal significant correlations between variables. This study focuses on examining the impact of the Octalysis Gamification Framework on student engagement in traditional Chinese handicraft education, specifically in the context of Xiangxi Blue Calico. It explores both the direct and indirect effects of the framework on student engagement. The qualitative investigation explores the rich cultural heritage of Xiangxi Blue Calico. This study examines the compatibility of the Octalysis Gamification Framework with Chinese handicraft education, specifically focusing on Xiangxi Blue Calico. The research adopts a qualitative case study approach to explore this aspect.

The research findings demonstrate the positive impact of the Octalysis Gamification Framework on traditional Chinese handicraft education, specifically in the case of Xiangxi Blue Calico. The study investigates the integration of the Octalysis Gamification Framework to enhance student engagement in cultural prospects, particularly in the context of Xiangxi Blue Calico. This integration creates a dynamic learning environment. This study will serve as a foundation for future research on the development and improvement of gamification elements and educational practices. Quantitative analysis reveals a strong positive correlation between the utilisation of the Octalysis Gamification Framework and active engagement in traditional handicraft education, as exemplified by the case of Xiangxi Blue Calico. Similarly, qualitative exploration focuses on integrating the Octalysis Gamification Framework with Xiangxi Blue Calico's cultural heritage to enhance students' comprehensive learning. The findings of this study provide support for the effectiveness of the Octalysis Gamification Framework in influencing student engagement and providing cultural insight into Xiangxi Blue Calico.

The study holds significance beyond its academic scope. This initiative enhances educational practices by addressing a significant gap in traditional Chinese handicraft education. Furthermore, it significantly contributes to the preservation of Chinese handicraft heritage. The study examines the Octalysis Gamification Framework's impact on cultural learning experiences, highlighting the intricate connections between student engagement, gamified teaching methods, and students' involvement in cultural education.

Recommendation

The study results suggest several recommendations that could be provided to the institution and stakeholders. Institutions should systematically incorporate the Octalysis

framework into the curriculum, including the integration of the core elements: epic meaning, achievement, empowerment, and social impact. Workshops and training programmes should be designed to empower teachers with the ability to utilise this framework, thereby fostering student interest in cultural understanding. Encouraging collaboration among higher education institutions, industry professionals, and cultural circles can enhance the classroom experience by providing practical exposure to Xiangxi Blue Calico. By conducting ongoing research and evaluation, the Octalysis model can be enhanced to cater to diverse learners with varying cultural backgrounds. Efforts should be made to educate stakeholders about the significant role of gamified methods in preserving traditional crafts, in order to secure their ongoing support and involvement.

Limitation

However, the sample used in this study may have limitations. The study focused on a specific group of students from the Hunan Institute of Science and Technology, which may limit the generalizability of the findings to a broader population. The qualitative component of the case study on Xiangxi Blue Calico relied on secondary sources and historical documents, potentially limiting the depth of firsthand experiential insights. Furthermore, relying solely on a single case study, such as the Xiangxi Blue Calico, may restrict the generalizability of these findings to other comparable crafts and disregard variations across different cultural contexts. Future studies in this area will need larger and more diverse participant samples, as well as greater variation among the types of traditional craft or educational contexts involved, in order to strengthen their findings.

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