

GEN Z CREATIVE STUDENTS' PREFERENCES FOR SELF-DIRECTED VERSUS STRUCTURED LEARNING

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Abstract. The rapid widening of digital technologies and the requirements of the Fourth Industrial Revolution have disrupted the face of higher education and have changed the expectations of learners. Generation Z students who grew up in a digital world with a higher intake of technology are often stereotyped as students who enjoy autonomy and independent learning. However, technological fluency is not necessarily an indicator of a person's readiness for self-directed learning, especially in a collectivist educational setting like Malaysia. This study examines the orientation of identity formation of the learning preferences of students of the Malaysian Generation Z, in the discipline of creativity, in terms of self-directed and structured learning. The role played by technological familiarity, cultural background, and disciplinary requirements is examined, along with the correspondence between student preference and current pedagogical practices in creative tertiary education institutions. A quantitative survey design was adopted for obtaining patterns of preference and accompanying factors among the creative undergraduate students. The findings provide insight into the fact that although autonomy is valued, guided critique and structured mentorship are still central to effective learning experiences. Preferences show a hybrid orientation and less of a mind to complete independence. These results point to the need for balanced pedagogical models that include scaffolded guidance as well as opportunities for self-initiated exploration in support of culturally responsive and discipline-sensitive approaches to creative higher education in Malaysia.

Keywords: *Generation Z, self-directed learning, structured learning, creative education, Malaysia, higher education*

Introduction

The pace of digital technology and the birth of the Fourth Industrial Revolution (IR 4.0) have completely changed educational systems in the twenty-first century, which compelled the learning environment to be redesigned following technological and social changes (Taib et al., 2023). These transformations have changed not only the platforms of instruction, but also the cognitive and motivational profiles of learners. Generation Z (Gen Z), which is usually defined as people born from the mid-to-late 1990s onwards, have grown up in a digitally saturated environment with constant access to information and networked communication (Homer and Khor, 2022). Caused by this, learning preferences and expectations between this generation are considered to be very different from those of the previous ones. Understanding the learning processes of Gen Z and what pedagogical strategies are favored has thus become an important issue in current education research. Generation Z learners are broadly characterised as being digitally fluent and comfortable when navigating technology-mediated learning environments.

They often supplement learning with search engines, online video sites, and cooperative applications, which extend the learning process beyond traditional classroom boundaries and foster self-paced learning. This directional tendency has been conducive to a wider shift away from teacher-centred approaches to teaching in favour of learner-centred models in which agency over content, pace, and modality is enhanced. Research points out that although this generation attaches importance to independence, mentorship is often considered to be essential, and traditional didactic methods are often considered inadequate (Thien et al., 2021). These characteristics entail an inclination for self-directed learning (SDL), which is defined as a process in which the learners take initiative in diagnosing their needs, setting goals, identifying resources, and evaluating outcomes with varying levels of instructor support (Guilding et al., 2021).

However, technological fluency equating to readiness for SDL is much easier said than done. Cross-cultural studies have reported that self-directed learning readiness (SDLR) is shaped by cultural values and specifically, it is affected by the dimension of individualism versus collectivism (Guilding et al., 2021). Students from collectivist educational cultures, such as many Asian contexts, may show a lower level of preparedness for totally autonomous learning, having been exposed previously to structured, teacher-oriented educational systems (Guilding et al., 2021). In Malaysia, schooling has been traditionally characterised by emphasis on examination performance, structured teaching, and rote memorisation, which could lead to the limitation of the development of independent critical thinking skills. Following Malaysia's participation in the Programme for International Student Assessment (PISA) in 2009, there were returns in reforming the education system through the Malaysia Education Blueprint 2013-2025 in promoting higher-order thinking and learners' autonomy (Guilding et al., 2021). This is a policy context that identifies an ongoing tension between structured educational traditions and the desire to have independent learners. In relation to the Malaysian higher education context, emerging research has shown that the skills of generics and independence are associated with deeper learning more than teaching quality as the sole predictor of deep learning (Thien et al., 2021). Nevertheless, empirical evidence on the learning preferences of Malaysian Gen Z students in creative disciplines is scarce, with few studies focused on Gen Z students in non-Western settings of higher education countries. Creative programmes such as design, fine arts, media, and architecture generally involve the need for open-ended exploration and iterative development, and this works very well with the principles of SDL. At the same time, these disciplines are highly dependent on structured mentorship, critique sessions, and scaffolded skill acquisition. The presence of autonomy and structured guidance simultaneously in creative education is a pedagogical paradox, which is among the issues in creative education that have not received sufficient scholarly attention in the Malaysian context.

This work, therefore, intends to look into the preferences of the Malaysian Gen Z creative students in learning with a self-directed and structured learning approach, and to find out the factors that affect their preferences. Specifically, three research questions are addressed, namely: (1) What are the predominant learning preferences, Self-Directed or Structured, among Malaysian Gen Z Creative Students? (2) What are the predictor factors for these preferences, such as technological familiarity, cultural orientation, and self-regulatory competence? (3) Does demographic information like year of study and mode of delivery of the study affect the preference for SDL? By answering such questions, discipline-specific and culturally situated understanding is

shared to identify creative higher education practices in Malaysia. Such understanding is critical as Malaysia continues to mastermind its educational strategies with IR 4.0 demands and national reform agendas (Taib et al., 2023; Guilding et al., 2021).

Literature review

The issue of how creative students in Generation Z negotiate autonomy in organized forms of higher education lies at the crossroads of a number of theoretical traditions. Research on learner autonomy has developed over the years along three related, yet distinct, lines: Self-Directed Learning, Self-Regulated Learning, and Self-Determination Theory. Each provides a different lens into how learners engage or do not engage in their learning and offers a different way of looking at how they initiate, control, and maintain that engagement. At the same time, teaching studio pedagogy in creative disciplines brings some unique structural constraints and feedback cultures, and it complicates simplistic conceptions of independence. The dynamics of such phenomena, when played out in the sociocultural context of Malaysia, where the principles of hierarchy are still very much alive, are tense in nature between autonomy and structure. The constructs have been studied separately by some existing scholarship. What is, however, insufficiently theorized are the interactions between dispositional autonomy, regulatory competence, motivational need satisfaction, generational learning characteristics, and studio-based scaffolding that converge in structuring creative students from Malaysia Gen Z preferences on being self-directed or structured. This review integrates these strands in an attempt to develop an integrated conceptual foundation that can be used in the present study.

Self-Directed Learning (SDL) theory

Self-directed learning (SDL) has been conceptualized as a personal attribute, as well as a process in which learners take initiative and responsibility for their own education (Peno, 2024). Foundational models by Candy, Brockett, and Hiemstra, Grow, as well as andragogical backgrounds (Knowles), emphasize self-regulation, time management, and the independent use of resources (Peno, 2024), and the self-direction is presented as a pivotal orientation of adult learning (Lemmetty and Collin, 2022). Empirically, SDL skills are positively related to academic performance, where studies using online learning environments have found evidence that it is due to the capacities in SDL rather than cultural orientation alone that contribute to student performance (Wang et al., 2021). This convergence across studies implies that SDL is a good predictor of persistence and achievement. However, there are considerable critiques impelling individualistic conceptualizations of SDL. Scholars have contended that autonomy-focused definitions fail to take into consideration contextual and sociocultural influences on learning (Lemmetty and Collin, 2022), and empirical studies in the workplace confirm that self-direction goes hand-in-hand with collectivity, peers, and supervisory support rather than working in isolation (Lemmetty and Collin, 2022).

Furthermore, because SDL is entangled with neoliberal subjectivity, there are concerns about the extent to which ostensibly autonomous learning instead reproduces hegemonic values rather than actually empowering learners (Tougas, 2024). Of particular note is the finding of Wang et al. (2021) that collectivist cultural orientation mediated by SDL can positively impact performance (Wang et al., 2021), making it difficult to draw binary oppositions between SDL and collectivist environments. These

debates represent a long-standing theoretical blind spot: SDL research largely does not look into creative Gen Z learners in structured educational contexts, leaving underexplored the encounter of dispositional autonomy, generational identity, and creative practices. This study directly addresses that gap. While SDL emphasises learners' disposition and orientation toward taking initiative, it does not sufficiently explain the cognitive and metacognitive mechanisms through which autonomy is enacted in real learning situations. To understand how self-direction operates at the level of strategy, monitoring, and performance adjustment, the discussion turns to Self-Regulated Learning.

Self-Regulated Learning (SRL)

Self-Regulated Learning (SRL) is broadly understood as an autonomous, goal-oriented process through which learners actively construct and reconstruct task-related skills by transforming their mental abilities across self-reflective, motivational, and behavioural dimensions (Alotumi, 2021). Within higher education, SRL encompasses students' self-initiation in creating optimal learning conditions by controlling influencing factors and overcoming obstacles (Alotumi, 2021). Foundational models, particularly those advanced by Zimmerman (2000), conceptualise SRL through cyclical phases of planning, performance monitoring, and self-reflection (Goffena, 2025; Luo and Zhou, 2024), with goal-setting, self-monitoring, self-evaluation, and metacognitive regulation identified as core processes (Goffena, 2025; Luo and Zhou, 2024). Empirical evidence consistently affirms that these strategies positively influence academic outcomes (Luo and Zhou, 2024; Chen et al., 2022), with efficacious self-regulators demonstrating superior performance compared to peers with lower SRL engagement (Chen et al., 2022). However, one methodological weakness in the studies is that many are based on self-report questionnaires and take on a quantitative design (Luo and Zhou, 2024) that may not be capable of capturing the situated, context-dependent nature of SRL, particularly from the perspective of the creative learner. Furthermore, academic developmental levels in SRL competence have been noted over academic years, with senior students having a higher level of self-regulated motivation, compared to their junior peers (Alotumi, 2021), but studies of longitudinal and qualitative nature are still scarce (Luo and Zhou, 2024).

Critically, most current psychometric models and intervention research have been applied in EFL or blended learning settings (Luo and Zhou, 2024; Yabukoshi and Mizumoto, 2024), so that the application of creativity to non-Western societies has remained at the frontier of creatively-oriented disciplines where, for example, the Malaysia Gen Z design students attempt to negotiate between the two learning modes (i.e., self-directed and structured learning) and is looking for theoretical explanations. This study fills in these gaps by investigating SRL as a mechanism of competences underpinning learner autonomy preference as a culturally specific provision in a creative higher education context. Although SRL models do shed some light on the 'how' or procedural and metacognitive aspects of learner control, they are comparatively silent regarding why learners choose to engage in self-regulation in the first place. Questions of motivational quality and psychological need satisfaction are tackled more explicitly, on the other hand, within Self-Determination Theory, which offers a complementary framework of explanation.

Self-Determination Theory (SDT)

Self-Determination Theory (SDT), initially developed by Deci and Ryan, highlights that three core psychological needs, autonomy, competence, and relatedness, need to be met for a person to reach peak motivation, engagement, and well-being (Gu et al., 2021). There is empirical evidence to support that these needs are universal in terms of development levels and cultural contexts, with the satisfaction of psychological needs consistently predicting psychological health and intrinsic motivation (Sabo et al., 2022). In educational contexts in Malaysia, some studies have shown that personalized learning based on SDT has shown promising results, such as increased intrinsic motivation and language skill achievement, and increased student engagement (Zakaria et al., 2024). However, a critical problem still exists: Malaysian hierarchical cultural norms could limit the expression of autonomy, which might moderate the impact of autonomy supportive pedagogies (Tang et al., 2025; Gu et al., 2021). Research on Malaysian interns affirms that the need support construct is an important predictor of well-being through need satisfaction, but from a cultural relativist perspective, the concept of autonomy can reflect a Western individualistic ideal, which is less prominent in collectivist Eastern cultures (Sabo et al., 2022; Gu et al., 2021).

Studies on creativity also show that empowerment and autonomy are motivating factors and contributors to intrinsic and creative performance, but hierarchical organisational cultures inhibit them in Malaysia (Tang et al., 2025). Despite the increasing interest in SDT, there are still gaps in research publication, especially with few studies looking at SDT specifically among creative Gen Z students in Malaysian higher education, and the study methods seldom adopt mixed-methods designs that are sensitive to the generational and disciplinary differences. This proposed study tackles these deficiencies by examining how the constructs of autonomy, competence, and relatedness interact with the cultural moderation in shaping the preferences of Gen Z creative students towards self-directed learning versus structured learning in Malaysia. However, motivational need satisfaction does not take place in a vacuum. In creative higher education, autonomy is negotiated, along with competence and relatedness, in the highly distinctive ecology of studio pedagogy whereby critique, hierarchical mentorship, and structured briefs influence everyday learning experiences.

Studio pedagogy and structured scaffolding in creative education

Studio pedagogy in creative education has been built on the pedagogies of critique-based learning, apprenticeship learning traditions, and negotiation between open exploration and structured briefs for learning, but tensions have persisted to date, especially regarding Generation Z learners in non-Western spaces such as Malaysia. There is empirical support to the notion that critique sessions remain a central feature of design and art education and are a primary point of feedback through which students learn to exercise professional judgment, and cite needed, albeit research indicates that badly managed critique environments tend to suppress creative risk-taking rather than encourage it. The tension between the structured brief and the freedom to explore is a documented pedagogical challenge, as too prescriptive an assignment leaves little scope for creative agency, while tasks that are entirely open-ended may be overwhelming for the student who faces the obstacles of not having basic scaffolding. Apprenticeship traditions that have been inherited from Bauhaus and atelier models still shape studio culture with its hierarchical feedback dynamics that may clash with Gen Z students' documented preferences for independence and self-direction (Toh et al., 2022).

Malaysian Gen Z students in particular show tendencies towards independent working when group dynamics are disharmonious (Toh et al., 2022), which implies that studio environments that require collaborative critique may cause certain group frictions for this particular group. Existing studies have explored the subject of guided autonomy in the Western studio contexts, but seldom cover the Malaysian creative higher education context in particular, leaving a significant contextual gap. Digital media literacy research shows that Generation Z learners process and interact with instructional content in multimodal, nonlinear, and technology-mediated ways. However, the behavioural tendencies within studio pedagogy have yet to be translated into scaffolded design strategies within creative education in line with the understanding afforded by studio pedagogy scholarship. This gap calls for further closer examination of how Malaysian Gen Z creative students negotiate the inquiry between self-directed exploration and guided studio work from a structured environment. The tensions running through studio structures may be further intensified when seen through a generational prism. Generation Z students bring unique digital habits, expectations of flexibility, and a preference for autonomy that might be in sync with or in opposition to the traditional studio norms. It is therefore very important to understand these generational characteristics.

Sub-title/topic Generational learning characteristics (Gen Z)

Generation Z learners have been widely characterised as digital natives with unique information behaviours due to their lifetime exposure to technology. They access and transmit information in a rapid period of time, engage in multitasking, and prefer nonlinear and technology-enabled learning environments (Abdullah, 2025; Hammad, 2025). Empirical studies in the Malaysian higher education context point to the fact that Gen Z students exhibit high engagement in digital technologies, are often multitasking across devices, and prefer interactive and flexible learning environments. However, these tendencies are not completely replacing teacher-centred approaches as they coexist with structured instructional practices (Abdullah, 2025), and further supporting this, Gen Z postgraduate students are skilled in harnessing technology for collaboration and flexible learning in line with self-determined learning principles. Thien et al. (2021) show empirical evidence from Malaysian private higher education institutions showing that focus on independence and generic skills has a significant predictive effect on deep learning among undergraduates and continues to be a persistent obstacle to learning deep learning.

However, digital media literacy research remains poor in Malaysia; heutagogical implementation within Malaysian institutions is still underdeveloped (Abdullah, 2025), and it is a critical gap. Furthermore, Taib et al. emphasize that educators have to adapt to the technology-driven learning preferences of Gen Z, but that generational characterisations can be an oversimplified way of looking at things. Critically, no study has specifically investigated Gen Z creative students' preferences for self-directed versus structured learning in Malaysia, and this leaves a contextual and disciplinary gap that the proposed study addresses. Taken together, SDL describes autonomy as orientation, SRL explains autonomy as competence, SDT describes autonomy as motivational need fulfilment, studio pedagogy describes structural constraints of autonomy, and generational research contextualises learner expectations. Yet no study has brought these perspectives together in order to investigate the negotiation process

between self-directed and structured learning by Malaysian Gen Z creative students. The current research helps fill this conceptual and contextual gap.

Theoretical foundations

This study is theoretically based on Self-Determination Theory (Ryan and Deci, 2000) and Self-Regulated Learning Theory (Zimmerman, 2000). Self-Determination Theory states that autonomy, competence, and relatedness are basic psychological needs that must be fulfilled in order for optimal motivation and engagement to be achieved. Within the context of the Malaysian higher education for creativity, these needs are understood to influence the preferences in self-directed or structured learning environments for students. Autonomy is conceptualized as a desire for volitional engagement; competence is conceptualized as the perceived capacity to deal with academic demands, and relatedness is conceptualized as the need for supportive studio relationships. In parallel, Self-Regulated Learning Theory conceptualises the process of learning as a cyclical process that includes planning, monitoring, and reflection through which academic performance is strategically managed. Through this lens, learner autonomy is not regarded as a disposition in itself but a competence which is put into practice through metacognitive and behavioural regulation. The integration of these frameworks helps to study motivational orientation and regulatory processes as interdependent instead of isolated constructs. While motivational needs are assumed to be a factor in the inclination toward autonomy or structure, self-regulatory competence is identified as the mechanism by which such inclinations are expressed as academic action. In the context of studio-based creative education, in which elements of structured brief, critique sessions, and hierarchical critique are part of daily practice, both motivational need satisfaction and regulatory skill are expected to interact dynamically. By integrating these perspectives, a more complete explanation is set up for the negotiation of self-directed and structured learning by Malaysian Generation Z creative students in culturally moderated higher education environments. The combination of the theories was presented in a conceptual grounding framework in *Figure 1*.

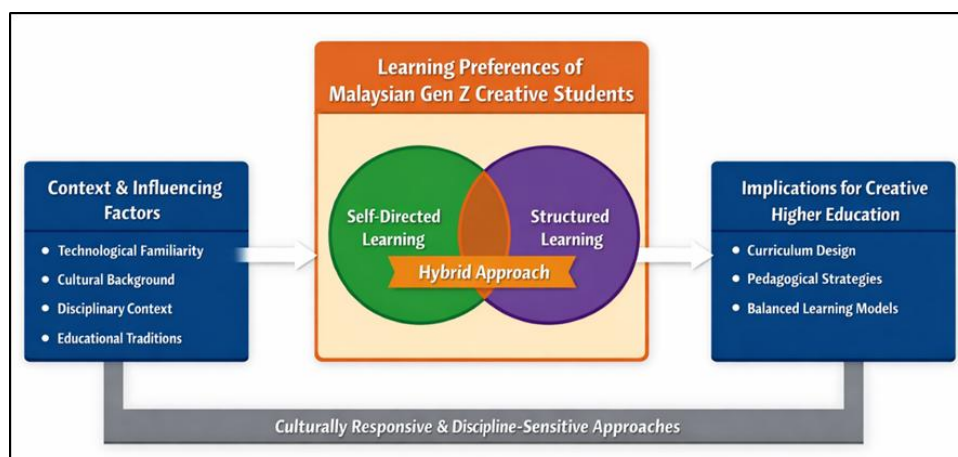


Figure 1. Contextualized self-directed learning preference framework.

Materials and Methods

A cross-sectional quantitative research design was adopted to investigate Gen Z creative design students' preferences between self-directed learning (SDL) and lecturer-facilitated instruction (LFI) and identify the psychological, technological, and contextual determinants of students' preferences. The design aimed to answer three research questions: (RQ1) the overall preference pattern between SDL and LFI, (RQ2) predictions of SDL preference, and (RQ3) demographic differences for SDL preference. A correlational framework was taken to allow both mean comparisons and multivariate modelling. The design of the study was consistent with autonomy-based learning theory and studio pedagogy frameworks, so that there is conceptual coherence between theoretical constructs and empirical testing. The quantitative approach was used to allow statistical estimation of preference magnitude and explanatory variance. Descriptive statistics were combined with inferential tools such as paired samples t-tests, multiple regression analysis, and one-way analysis of variance (ANOVA). The analytic sequence was designed in a hierarchical fashion in which basic descriptive patterns (RQ1) informed the predictive modelling (RQ2), which was then contextualized on the basis of demographic comparison (RQ3).

Participants and sampling

Participants were undergraduate students aged between 18 and 25 years enrolled in creative design programmes such as graphic design, fashion design, creative multimedia, industrial design, and textile design in selected public and private universities in Klang Valley. The public Universities were Universiti Malaya, Universiti Teknologi MARA, Universiti Putra Malaysia, and Universiti Pendidikan Sultan Idris. The private universities included Taylor's University, UCSI University, Asia Pacific University of Technology and Innovation, and Multimedia University. In total, 320 respondents were analysed. Recruitment was carried out by institutional mailing lists and announcements from courses. Participation was on a voluntary and anonymous basis. A probability simple random sampling approach was taken to ensure proportional representation by academic year group and mode of delivery, including face-to-face, blended, and predominantly online learning. The sampling frame was limited to students who were actively taking studio-based or design-oriented modules. This restriction was on purpose. The purpose of the study was to compare pedagogical experiences, and thus the participants needed to be embedded in practice-led coursework rather than theoretical subjects. A post hoc power analysis showed that the final sample was larger than the minimum sample needed to detect a medium effect size (Cohen's $d = .50$, $\alpha = .05$, power = .80) in paired and regression modelling (6 predictors). The sample size achieved, therefore, enhanced statistical conclusion validity by minimizing the possibility of Type II error.

Instrumentation and operationalisation of constructs

A structured survey instrument was drafted for the operationalisation of the central constructs. All of the items were scored on a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). Multi-item scales were developed for SDL, LFI, Self-Regulated Learning (SRL), Motivation, Engagement, Technology Integration, and Cultural/Social Influence. The operationalization of SDL was perceived autonomy, independent problem-solving, and self-initiated exploration. LFI was operationalised in

terms of preferring structured tasks, lecturer guidance, and directive feedback. SRL measured the behaviours of goal setting, monitoring, and reflective regulation. Motivation was an ingredient of intrinsic and identified learning orientation. Engagement was capturing behavioural and cognitive participation. Technology Integration measured digital tools fluency as well as comfort with using online learning platforms. Cultural/Social Influence measured perceived norms of the individual peers and expectations of collectivism under learning scenarios. Content validity was determined by expert review by three academics in the disciplines of educational psychology and design pedagogy. Items were assessed for conceptual clarity, construct alignment, and redundancy. Minor changes were made in order to increase precision and remove ambiguity. Construct validity was evaluated with the help of exploratory factor analysis using principal axis factoring with oblique rotation. Items were kept if the factor loadings were greater than .50 and cross-loadings were less than .30. Internal consistency reliability was assessed by using Cronbach's alpha. All scales showed acceptable to strong reliability, .75, suggesting stability and coherence of the scales. Reliability testing ensured such observed mean differences and regression coefficients were not artefacts due to measurement inconsistency.

Composite index building

To answer RQ1, a composite SDL-LFI preference index was calculated. Mean scores for SDL and LFI were first calculated separately. A directional index was then created by subtracting LFI from SDL and rescaling the difference onto a 7-point continuum, in order to make the difference more easily understandable. Higher values indicated higher SDL preference. Criterion-related validity was measured by correlating the preference index and scores on SDL and LFI. As it should be theoretically expected, the index showed a positive correlation with SDL and a negative one with LFI, which confirms the alignment between a composite construction and its conceptual definition. Split-half reliability was analyzed for the index to establish the internal consistency of the aggregated measure.

Data collection procedures

Data were gathered on an online survey platform. Informed consent was given before the participants. Respondents were informed that no identifiable information would be registered, and withdrawal would be possible at any time without penalty. Data screening procedures were undertaken before analysis. Cases with an excessive amount of missing data (>20%) were excluded. Missing values of less than 5% were treated by a method of mean substitution within scales in order to maintain internal consistency. Univariate outliers were assessed with the help of z-scores (+3.29 threshold), whereas multivariate outliers were assessed with the help of Mahalanobis distance. No influential cases that needed to be removed were found. Normality assumptions were assessed with the help of skewness and kurtosis statistics. Values were within acceptable limits (+ - 2), allowing parametric testing. Homogeneity of variance was tested with Levene's test before the application of the procedures of the analysis of variance (ANOVA).

Statistical analysis strategy

Analysis for RQ1

Descriptive statistics (means, standard deviations, minimums, and maximums) were calculated for SDL and LFI. Pair t-test was conducted to analyze the within-subject difference between SDL and LFI scores. Cohen's d was reported to be used as a measure of practical significance. Frequency distributions were created to classify students of either SDL-leaning, LFI-leaning, or hybrid based on the composite index. This offered a distributional perspective in place of mean comparison. Statistical conclusion validity was enhanced by reporting effect size and confidence interval estimation.

Analysis for RQ2

Multiple linear regression analysis was performed using SDL preference as a dependent variable. Predictor variables were SRL, Motivation, Technology Integration, and Cultural/Social Influence. Multicollinearity diagnostics were tested by the variance inflation factor (VIF) and the tolerance statistics. All VIF values were below 3.0, which indicates that the predictors were independent of each other. Standardized beta coefficients were interpreted in order to establish relative predictor strength. The goodness of fit of the overall model was assessed by using R² and adjusted R². The regression model accounted for 58% variance in the dependent variable, indicating that it explained the dependent variable well. Stability in parameter estimation is provided by the reliability of predictor scales and support for the theoretical coherence between the predictors and autonomy orientation provided by construct validity.

Analysis for RQ3

One-way analysis of variance (ANOVA) was performed to investigate the differences in the preference of SDL in different year levels and the delivery modes. The homogeneity of variance was tested before analysis. Where significant omnibus effects were found, Tukey's HSD post hoc comparisons were conducted in order to determine specific group differences. Effect sizes were based on the calculation of eta-squared (η^2) to ascertain the practical size. These procedures ensured that demographic comparisons were robust, statistically speaking, and meaningful, conceptually speaking. External validity was strengthened by representation in several academic years and learning situations.

Validity and reliability integration

Multiple forms of validity were built into the methodology throughout in order to ensure coherence with research objectives. Content validity was used to make sure that SDL and LFI were conceptually different constructs, and directly supports RQ1. Construct validity supported the interpretation of findings from the regression analyses in RQ2, by showing that multi-item scales were measuring the intended theoretical dimensions. Criterion-related validity was shown by the logical correlations between the preference index and individual constructs. Reliability testing for consistency across all scales, which protects against attenuation bias in regression modelling and mean comparison. Statistical conclusion validity was enhanced by issues of assumption testing, effect size reporting, and sufficient sample power. By combining psychometric evaluation, descriptive and inferential procedures, methodological rigor was preserved in considering all three of the research questions. The analytic structure guaranteed that observed preference patterns, predictive relations, and demographic differences were based on reliable and valid measurement so as to make strong empirical conclusions.

Results and Discussion

Demographic statistics

The demographic profile indicates that the sample was composed primarily of young undergraduate students within the expected Gen Z age bracket. The mean age was 21.34 years ($SD = 1.92$), with a range from 18 to 25 years, suggesting adequate representation across early and later undergraduate stages. Gender distribution was skewed toward female participants (61.9%), with males representing 34.7% of the sample. This pattern reflects common enrolment trends within creative disciplines, where female participation is often higher. The distribution across year levels was relatively balanced, with Year 1 (26.3%), Year 2 (27.8%), and Year 3 (28.8%) students represented in comparable proportions, allowing meaningful developmental comparisons without severe group imbalance. Programme representation was diversified across five creative disciplines, with Graphic Design (25.9%), Fashion Design (22.2%), and Creative Multimedia (21.9%) forming the largest subgroups. Industrial/Product Design (16.9%) and Textile Design (13.1%) were also adequately represented, supporting cross-disciplinary generalisability within creative education contexts. In terms of instructional format, the largest proportion of students reported experiencing blended learning (45.0%), followed by mostly online (29.7%) and face-to-face delivery (25.3%). This distribution suggests that a substantial portion of the cohort had exposure to digitally mediated learning environments, providing contextual relevance for analysing autonomy and self-directed learning preferences. Overall, the demographic composition supports balanced inferential testing across academic level, programme, and delivery mode variables (*Table 1*).

Table 1. Demographic statistics.

Variable	Category	n	%	M	SD	Range
Age (years)	-	-	-	21.34	1.92	18–25
Gender	Female	198	61.9	-	-	-
	Male	111	34.7	-	-	-
Year of Study	Year 1	84	26.3	-	-	-
	Year 2	89	27.8	-	-	-
	Year 3	92	28.8	-	-	-
Programme	Graphic Design	83	25.9	-	-	-
	Fashion Design	71	22.2	-	-	-
	Creative Multimedia	70	21.9	-	-	-
	Industrial/Product Design	54	16.9	-	-	-
	Textile Design	42	13.1	-	-	-
Delivery Mode	Mostly Online	95	29.7	-	-	-
	Blended	144	45.0	-	-	-
	Face-to-face	81	25.3	-	-	-

RQ1. What are Gen Z creative design students' preferences between Self-Directed Learning (SDL) and Lecturer-Facilitated Instruction (LFI)?

Students showed a clearly positive and statistically significant preference for the Self-Directed Learning over the Lecturer-Facilitated Instruction (*Table 3*). As shown in *Table 2*, there was a significant difference between the mean scores of the two forms of learning behaviours (DLF and LFI), with the mean score for the SDL ($M = 3.78$, $SD = 0.61$) being higher than that of the LFI ($M = 3.42$, $SD = 0.58$), meaning that there was greater endorsement of autonomy-based learning behaviours such as independent exploration and self-initiated problem-solving. The paired samples t-test found that this difference was not trivial, $t(319) = 9.84$, $p < .001$ (*Table 4*), a medium effect size ($d = 0.55$). This magnitude implies that there is some meaningful directionality of

preference, as opposed to holistic rejection of lecturer-facilitated instruction. The 7-point composite preference index further reinforces this pattern in the overall mean of 5.08, which places the sample clearly above the midpoint and towards the SDL end of the continuum. Importantly, there is still much variability ($SD = 1.41$), suggesting that autonomy preference is widespread but not uniform. However, the categorical distribution on the part of Gen Z, as shown in *Table 2*, makes any simple argument that Gen Z is uniformly in favor of independence difficult to formulate. While 55.0% of respondents considered themselves to be SDL-leaning, a large number of people (28.8%) described themselves as hybrid, or undecided, with 16.2% of people remaining LFI-leaning. This distribution shows that while autonomy is the dominant orientation, systematic lecturer involvement still has some relevance for a significant proportion of the students. The pattern is suggestive of directional preference as opposed to ideological rejection of instruction. In other words, it seems that students prefer greater autonomy, but not without guidance. The moderate effect size (*Table 4*) replicates this interpretation of the results, which could be conceived meaningfully, but balanced in terms of directional tendency towards SDL. Autonomy, therefore, might work best when situated within organisationally structured pedagogical understandings rather than as a substitute for such understandings.

Table 2. Descriptive statistics of core variables ($n = 320$).

Variable	Mean	SD	Min	Max
SDL_Score	3.78	0.61	2.10	4.95
LFI_Score	3.42	0.58	1.88	4.85
SRL_Score	3.71	0.63	2.00	4.89
Motivation_Score	3.85	0.55	2.30	4.97
Engagement_Score	3.74	0.59	2.10	4.93
Preference (1-7)	5.08	1.41	1	7

Table 3. Preference distribution.

Category	n	%
SDL-leaning	176	55.0%
Hybrid/Undecided	92	28.8%
LFI-leaning	52	16.2%

Table 4. Paired *t*-test (SDL vs LFI mean difference).

Comparison	t	df	p	Cohen's d
SDL vs LFI	9.84	319	< .001	0.55

RQ2. What factors significantly predict preference for SDL over LFI?

Multiple linear regression analysis was performed to investigate whether the role of self-regulated learning competence, technology integration, motivation, and cultural-social influence has a significant impact on preference for self-directed learning (*Table 5*). The overall model was statistically significant at the level, indicating that the selected predictors combined to explain a meaningful proportion of variance in SDL preference. Self-Regulated Learning (SRL) was the best predictor of all ($B = 0.29$, $SE = 0.08$, $b = .21$, $t = 3.63$, $p < .001$). This means that students who are better at goal-setting, monitoring, and reflective regulation are much more likely to prefer self-directed learning environments. The extent of the standardized coefficient indicates that regulatory competence is central to the formation of autonomy orientation. Technology

Integration also showed a significant positive predictive effect on SDL preferring ($B = 0.24$, $SE = 0.07$, $b = .18$, $t = 3.41$, $p = .001$). Those students indicating higher levels of digital fluency and technology-mediated learning environments had a stronger tendency to maintain approaches learnt by themselves. This finding stands to suggest that technological preparedness is reinforcing one's confidence in negotiating autonomous learning contexts. Motivation showed a smaller but significant positive effect ($B = 0.19$, $SE = 0.09$, $b = .12$, $t = 2.11$, $p = .035$). Although its predictive strength is relatively modest, intrinsic and identified motivational orientations make significant contributions to SDL preference. On the contrary, Cultural-Social Influence was negatively related to SDL preference ($B = -0.14$, $SE = 0.06$, $\beta = .10$, $t = -2.33$, $p = .020$). Students who indicated that they had stronger collectivist or peer-dependent learning norms were less likely to prefer to learn in structures that are autonomy-oriented. While the effect size is moderate, it is an indication that sociocultural positioning still influences learning orientation in the Malaysian context. The results indicate that preference for self-directed learning is mainly driven by competence and reinforced by technology, and is in moderate degree, mandated by culture. Autonomy preference, therefore, seems to be structural instead of generationally assumed.

Table 5. Multiple regression predicting SDL preference ($n = 320$).

Predictor	B	SE	β	t	p
SRL_Score	0.29	0.08	.21	3.63	< .001
Tech_Integration_Score	0.24	0.07	.18	3.41	.001
Motivation_Score	0.19	0.09	.12	2.11	.035
Cultural_Social_Influence	-0.14	0.06	-.10	-2.33	.020

RQ3. Are there demographic differences in SDL preference?

The results of the analysis show statistically significant differences in demographic elements of the preference for SDL across year levels. As shown in *Table 6*, the mean preference scores have a significant increase from Year 1 ($M = 4.61$, $SD = 1.39$) to Year 3 ($M = 5.29$, $SD = 1.28$). The difference between the three is confirmed not to be due to chance by the result of the analysis of variance (ANOVA) $F(3, 316) = 8.27$, $p < .001$. Post hoc comparisons show that Year 3 students show significantly greater preference for SDL as compared to the Year 1 students ($p < .001$). The pattern should be seen as a developmental path where autonomy orientation increases as students' progress in terms of academic success. Increased exposure to studio critique, independent projects, and iterative designing processes may perhaps prepare one to develop confidence in ways of working on one's own. The decrease in standard deviation by year also provides a hint of the greater convergence towards autonomy amongst the more senior students, and could suggest stabilisation of learning orientation over time. Delivery mode is another differentiating feature of SDL preference. As can be seen in *Table 7*, students in predominantly online environments expressed the greatest orientation to autonomy, $M = 5.41$ ($SD = 1.26$), followed by blended learners, $M = 5.12$ ($SD = 1.38$), with comparatively low expression of SDL preference by face-to-face students, $M = 4.78$ ($SD = 1.44$). This is a pattern that suggests that the digitally mediated environments may predispose students to independent task navigation and self-management behaviours. Online contexts often call for asynchronous control, platform literacy, and less real-time supervision, all of which are in accordance with SDL competencies. However, the differences are moderate rather than extreme, suggesting adaptation rather than

polarization. Autonomy preference seems to be strengthened by the context in which it is exposed rather than being determined by demographic category.

Table 6. ANOVA by year of study.

Year	Mean preference	SD
Year 1	4.61	1.39
Year 2	4.94	1.37
Year 3	5.29	1.28

Table 7. Delivery mode differences.

Delivery Approaches	Mean Preference	SD
Mostly Online	5.41	1.26
Blended	5.12	1.38
Face-to-face	4.78	1.44

The results showed that Gen Z creative design students show a distinct preference for self-directed learning, but it is not absolute and unstructured. Quantitative results revealed a significantly greater endorsement of SDL than LFI (Table 4), with more than half of respondents falling into the category of SDL-leaning (Table 3). However, almost one-third considered themselves as hybrid, and this may mean that students do not reject lecturer involvement, but demand a recalibrated form of guidance. The pattern is further elucidated by the result of the regression analysis (Table 5). SDL preference is very strongly predicted by self-regulated learning capacity and integration of technology, which implies that autonomy is a competence-dependent rather than simply attitudinal. Students with goal-setting and monitoring skills are more comfortable with the independent models. At the same time, cultural and social influence had a negative predictive to SDL preference, albeit slightly, which showed a tendency for collectivist expectations to still influence learning orientation. The results indicate that autonomy is contextual, moderating, rather than universal and preferred.

Developmental and contextual effects lead to the deepening of this interpretation. There were significant increases in SDL preference across the year levels (Table 6), so it was suggested that autonomy strengthens with academic maturity and studio experience. This presents the idea that independence is developed rather than being born. Similarly, the students in mostly online environments showed stronger evidence of SDL preference (Table 7), suggesting that digital learning contexts may speed up the orientation to autonomy by normalising the self-navigational and asynchronous control. Yet the qualitative findings make any hypothesis of Gen Z simply preferring independence muddy. The distributional pattern is also suggestive of a hybrid orientation because a large percentage of students reported neither being solely SDL nor LFI-leaning. Students desire freedom to explore, but within very articulated briefs and structures for feedback. The implication is not the eroding of lecturer authority but rather its transformation, from an instructional force in the form of a directive toward a facilitative force in the form of structure. In terms of the best model for creative studio education, it might therefore be guided autonomy as opposed to polarized frameworks of SDL or LFI.

Conclusion

This study aimed to establish whether Gen Z creative design students prefer to learn under their own direction rather than with a lecturer guiding them and to what factors influence this. The results show a clear and statistically significant bias towards SDL, with autonomy-oriented learning being endorsed more than structured or instructor-led approaches. However, the degree of this preference, although meaningful, is not extreme. The regression model indicated that the SDL preference has a strong association with the self-regulated learning capacity and technology integration, and a significant amount of variance. This suggests that autonomy is not a generational attitude, but a competence-linked orientation that is based on the ability of students to manage goals, track progress, and move in the digital world. Cultural and social influence became a small but significant counter force, and it implies that learning preferences are still embedded within the context of the collective expectations and norms of peers. Developmental patterns also make the path of autonomy clearer. SDL preference improved across academic year levels, suggesting that independence builds with experience of studio practice and academic maturity and is not merely a generational characteristic. Delivery mode was also important, as contexts experienced online were associated with reinforcement of self-directed orientation. Taken together, these findings challenge the common claim that Gen Z, as a whole, rejects structured teaching. Instead, they show a nuanced directional tendency toward guided autonomy in which students cherish independence but in pedagogical systems that keep things clear, provide feedback, and hold students accountable. For creative design education, this means that the implication is not to abandon lecturer facilitation, but to redesign lecturer facilitation, placing instructors in the position of strategic support, fostering competence while gradually broadening the learner's control.

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Conflict of interest

The authors declare that no conflict of interest is involved with any parties in this paper.

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