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Clothing motivation, online critical thinking, and the behavioural intention of clothing collocation: Mediation analysis on Chinese youth

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Abstract
Recent years have witnessed a boom of fashion blogging sharing information about clothing and cosmetics on diverse social media platforms. Constant exposure to fashion-related digital information heavily impacts the conception and behaviours of Chinese youth. Compared to the substantial studies on the impact of social media, scarce research has been conducted on how youth's cognitive processing of fashion-related digital information interacts with motivational factors to determine the subsequent behaviours. This study made an initial attempt to address this issue by exploring the successive associations between clothing motivation (amotivation, controlled, and autonomous motivation), online critical thinking (for information credibility, objectivity, and relevance), and the subsequent behavioural intention. A total of 1997 Chinese youth with diverse educational backgrounds voluntarily participated in the study. Results confirmed the direct links between clothing motivation and the behavioural intention, and these links were mediated by different online critical thinking practices. This study provides new insights for both practitioners and scholars in the fields of education, psychology, social media, and marketing.

Keywords Online critical thinking · Clothing motivation · Behavioural intention · Clothing collocation · Chinese youth

Introduction

Computing technologies are constantly changing the characteristics of fashion marketing on digital media, particularly targeting the young population (Lee et al., 2017). Data mining on search keywords and visit histories enables automatic statistical calculation to portray users' profiles and interests, thereby generating tailored fashion-related content to attract youth's eyeballs (Ng et al., 2015). Consequently, an increasing number of young audiences are assembled on social media, with their aesthetics constantly and imperceptibly influenced by the converging digital fashion information (Abidin, 2016). Acknowledging such a big impact of social media and the huge potential markets they expand, clothing industry, the core of fashion-related production, starts to shift focus to digital marketing and promotion on social networks (e.g., Facebook, Twitter, Wechat), media sharing networks (e.g., Instagram, Youtube, Aiqiyi, Bilibili), social blogging networks (e.g., Tumblr, Medium, Xiaohongshu, Weibo), and social shopping networks (e.g., Polyvore, Etsy, Taobao, Kuaishou-TikTok) (Ng et al., 2015). For example, youth are offered cost-effective avenues to interact with their favorite fashion brands and bloggers by searching, sharing, and commenting on clothing-related content (Sudha & Sheena, 2017). In the process of these interactions, their clothing mindset and behaviours are, to some extent, molded through explicit and implicit encouragement of youth's endorsement of fashion blogging (Sudha & Sheena, 2017).

Such phenomena have attracted substantial scholarly attention in recent years, with many concerns addressed regarding the impact of social media on youth development (Han & Choi, 2019). Past studies have found mixed effects of fashion blogging on youth's clothing-related cognition (Oh & Nah, 2022), emotion (Mahmoud et al., 2021), behaviours (Mahmoud et al., 2021) and academic performance

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(Barnes & Tynan, 2007; Lundy et al., 2010). Additionally, inconclusive findings were also obtained on the development of youth's aesthetic appreciation under the heavy exposure of digital fashion-related content (Reilly & Hawley, 2019). Some assumptions are made to explain such phenomena that youth's own (meta)cognitive and affective resources may interact with personal and contextual backgrounds to determine how they process digital information, which to some extent weakens the impact of youth's exposure to the converging digital information (Güzin & Şener, 2020). Unfortunately, compared to a large number of empirical studies tapping into the effects of fashion blogging, little has been done to unravel the underlying mechanisms of how youth's own mental resources interactively process digital fashion information and how such processes influence their clothing behaviours (Wong, 2007).

To address this gap, the present study made an initial attempt by exploring the relationships between youth's clothing motivation (i.e., cognitive resources), online critical thinking (OCT) practices (i.e., affective resources), and the subsequent behavioural intention with respect to clothing collocation. OCT is regarded as one of the most critical activities that young people engage in to assess the quality and integrity of digital content and to self-regulate digital behaviours (Broadbent & Poon, 2015). The exploration of how OCT practices mediate the transferring processes from youth's clothing motivation to decision-making and behaviours highlights youth's psychological functioning in this digitalized age. In general, the study contributes to the knowledge base of youth's cognitive processing of domain-specific digital information, providing new insights for practitioners and researchers in the fields of education, psychology, and social media and marketing.

Literature review

Motivation for clothing collocation

Self-determination theory

Self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2017) reconstructs the dichotomy of internal versus external motivation into a continuum of intrinsic-extrinsic regulation. At the intrinsic pole of this continuum lie the deep-rooted unconscious drives and fully internalized goals and at the other pole are the imposed goals or forces (Deci & Ryan, 1991). To better operationalize these motives in empirical studies, the categorization of autonomous and controlled motivation is proposed (Deci & Ryan, 1985). The former refers to individuals' agreement with the activity value and the belief that activities are consistent with self-awareness. The latter is comprised of relatively external drives such as compliance with authority, desire for external rewards, or punishment avoidance (Ryan & Deci, 2017). The two types of motivation differ in the degree to which individuals self-determine and endorse the value of the action or activity they are doing. In addition, Ryan and Deci (2017) also postulate the existence of amotivation, which they refer to as a complete lack of self-determination and endorsement in behaviours. It is suggested that amotivation arises when people feel incompetent in controlling the accidental process or consequences or when they do not recognize any value of doing something (Ryan & Deci, 2002).

Different types of clothing motivation

Autonomous and controlled motivation for clothing collocation Specifically, regarding clothing behaviours, it has been found that individuals possess different types of motives and preferences (Broadbent & Poon, 2015). Some people may enjoy collocating clothes due to pleasure, interest, and self-esteem (Taljaard & Sonnenberg, 2019). The efforts they invest in doing clothing collocation are considered meaningful and enjoyable since some basic psychological needs (i.e., autonomy, relatedness, and competence) are well satisfied during the process of selection and self-expression (e.g., choosing and presenting different styles, clothes, shoes, and accessories for self-fulfillment and/or certain social functions) (Gurung et al., 2018). To put it differently, clothing behaviours are, to a large extent, self-determined and volitive when there is a perceived fusion of these behaviours with the demands for self-identity and confidence, or pure enjoyment. Such demands can be considered as the autonomous motivation for clothing collocation. In contrast to autonomous motivation, controlled motivation for clothing collocation refers to the externally imposed goals set by school regulations, workplace dressing codes, and social norms, which are also found to be the major incentives for clothing behaviours (Khare et al., 2012). The divergence between individuals' self-concept and socially defined value and aesthetics makes clothing behaviours less self-determined and enjoyable. In general, either intrinsically or extrinsically motivated, people's intentions to collocate clothes tend to endure as a result of the internal gains (e.g., enjoyment, confidence) and external rewards (e.g., punishment avoidance, social recognition). Therefore, it is hypothesized that both types of motivation are positively linked to youth's intention of clothing collocation, yet in varying degrees.

Amotivation for clothing collocation In light of Ryan and Deci's (2017) SDT, amotivation for clothing collocation can be referred to as people's lacking any desire or intention to spend time and efforts on clothing behaviours, which is theoretically opposite to autonomous and controlled motivation. It arises when people consider such behaviours meaningless

and see little prospect of reward or gains. It is thereby hypothesized that amotivation is negatively related to both types of motivation for clothing collocation and the subsequent behavioural intention. Additionally, the strength of the negative relationship between amotivation and autonomous motivation is assumed to be larger than that with controlled motivation, since people who value and enjoy more about clothing more are less likely to lose their motives.

Thinking critically about digital information of clothing

With the rapid development of social media, large quantities of user-generated content have been produced by the bottom-up participation of the mass, resulting in messy and fragmented digital data that vary considerably in professionalism, objectivity, fairness, transparency, and trustworthiness (Paris, 2002; Plencner, 2014). Great challenges are thereby posed to youth (Graham & Metaxas, 2003). Among many (meta)cognitive practices, critical thinking (CT) is considered one key endeavor for evaluating the quality and integrity of digital content and for youth's self-regulation of digital behaviours (Broadbent & Poon, 2015).

General critical thinking practices

To date, numerous definitions of CT have been proposed, with few universally accepted by scholars and practitioners in the educational field. As is synthesized in Liu, Frankel and Roohr's review study on seven CT frameworks, CT is generally referred to as the generic reasoning abilities of deliberately weighing evidence and processing information (e.g., identifying, analyzing, synthesizing, evaluating) to generate actionable knowledge for effective decision-making (Liu et al., 2014). Operationally, CT can be constructed by the widely accepted Bloom's taxonomy as a multidimensional quality, which includes three sub-dimensions: cognitive, affective, and psychomotor (Krathwohl, 2002). The first two are considered relevant to the education field. The cognitive domain consists of a more hierarchical knowledge domain (i.e., knowledge of facts, concepts, procedures, and metacognition) and a less hierarchical cognitive-process domain (i.e., ability and process of remembering, comprehension, application, analysis, evaluation, inference, creation) (Krathwohl, 2002). The affective domain includes the personality and dispositional factors that may impact individuals' willingness to conduct and pursue CT activities (Halpern, 2013; Krathwohl, 2002). The authors take the same viewpoint by interpreting CT as a set of cognitive, metacognitive, and affective resources of youth. However, this study chooses to exclusively tap into the measurement and characteristics of the affective domain of CT, which is comparatively underexplored relative to the knowledge and ability domains. In this vein, the present study employs the concept "CT practices", instead of "CT abilities" or "CT skills", when describing youth's general orientation towards and routine practices of activating CT knowledge and competence in certain real-life scenarios.

Online critical thinking practices

Conceptualization of online critical thinking In a digitalized post-truth era, personal attitudes and beliefs are, in many cases, more powerful than objective and factual information in the virtual space (Cooke, 2017; Mrah & Tizaoui, 2018). Consequently, it requires CT to actively serve as a frontline for youth to more unbiasedly and accurately process digital content that is laden with ambiguous and segmented information, polarizing ideas, and algorithmic biases (Ku et al., 2019). Given that the youth are constantly exposed to mass online information (Flanagin & Metzger, 2008), their online CT (OCT) practices may be largely shaped by digital experience and thus possess some unique features that are distinct from the general CT practices. In order to identify the additional characteristics of OCT in the digitalized age, Paris (2002) conducted an empirical study on the evaluative aspects of youth's OCT. In the study, OCT practices are empirically categorized based on the objects of CT — online information, which consists of four dimensions of information trustworthiness, authority, objectivity, and relevancy. Specifically, OCT-trustworthiness refers to the evaluation of content accuracy that is supported by the quality and logic of information, and the stability and extensibility of references. OCT-authority examines the source and qualification of the information, which can be judged through the identity, experience, and credibility of authors and publishing sites. OCT-objectivity evaluates the degrees of neutrality and bias of the information, which is reflected by the existence of misleading statements, one-sided arguments, and sponsoring groups for published statements. Lastly, OCT-relevance estimates the recency, pertinence, and suitability of information based on youth's different reading purposes (Paris, 2002; Plencner, 2014).

Measurement of online critical thinking To validly assess CT in educational contexts, several survey-style inventories and multiple-choice tests (e.g., California Critical Thinking Skills Test; Facione & Facione, 1994; Collegiate Assessment of Academic Proficiency [CAAP] test; Pike, 1989; American College Testing [ACT]; Pascarella & Terenzini, 1991; Cornell Critical Thinking Test [CCTT]; Gibbs, 1985) as well as self-reported scales (e.g., modified Motivated Strategies for Learning Questionnaire [MSLQ]; Nold, 2017) have been developed and validated across settings. Compared to the CT tests that are designed to challenge individuals to activate every CT ability through prompts in approximately authentic scenarios, the self-assessment CT scales are argued to

miss certain elements of CT (e.g., making judgment and explanation; Stanovich, 2009). However, the established CT scales with good psychometric properties are still considered informative and insightful for understanding the construct of CT, especially regarding its evaluative and attitudinal disposition dimensions (Liu et al., 2014). Therefore, in order to well measure youth's understanding of OCT (i.e., how they can critically process and evaluate fashion-related digital information) as well as their dispositional attitude towards activating such practices, a self-reported scale with a finite set of domain-specific prompts was developed by Paris (2002). Compared to the tests that specifically target on CT knowledge and abilities, self-reports can better measure the affective-evaluative domain of OCT.

Online critical thinking, motivation, and intention for clothing collocation

In view of the dual-process reasoning model proposed by Stanovich and West (2000), youth's processing of fashion-related information on social media may go through two systems: the heuristic and the analytical. The first system of thinking mainly relies on individuals' intuition, prior beliefs, and intrinsic orientations, whereas the latter is largely dependent on reflective and elaborate reasoning of the situations, which corresponds with the CT standards (Ku et al., 2019). In this vein, intuitively oriented motivation tends to relate closely with heuristics and subsequently results in fast decisions and judgments based on subjective beliefs and interests (De Neys, 2006). Comparatively, externally imposed goals may trigger more CT processes, obstructing the automatic operation of intuition and activating cognitive resources for more in-depth and elaborate evaluation of the information in order to better meet the external demands.

To date, the issue of how youth process digital information about clothing is still underexplored. Nevertheless, grounded on the aforementioned theories, it is expected that controlled clothing motivation is closely associated with all OCT practices, especially regarding information credibility. If youth are motivated by externally-imposed goals (e.g., school or workplace dressing codes), they may be willing to invest more efforts on evaluating whether the information they obtain accurately and unbiasedly echoes the external regulations and social norms. On the other hand, youth with high levels of autonomous clothing motivation may pay more attention to the evaluation of content relevancy, using it as the prior criterion for information selection. With emphasis played on the different aspects of digital clothing information, youth are assumed to make different decisions and exhibit varying behaviours with respect to clothing collocation. In contrast to controlled and autonomous motivation, amotivation is proposed to bear negative relationships with all types of OCT practices and the subsequent behavioural intention youth hold for clothing collocation.

The present study

To empirically test the successive relationships hypothesized above, the present study constructed a comprehensive model (see Fig. 1). In this model, controlled clothing motivation is positively linked to all OCT practices, which in turn relate to behavioural intention of clothing collocation. As for autonomous clothing motivation, it is positively associated with

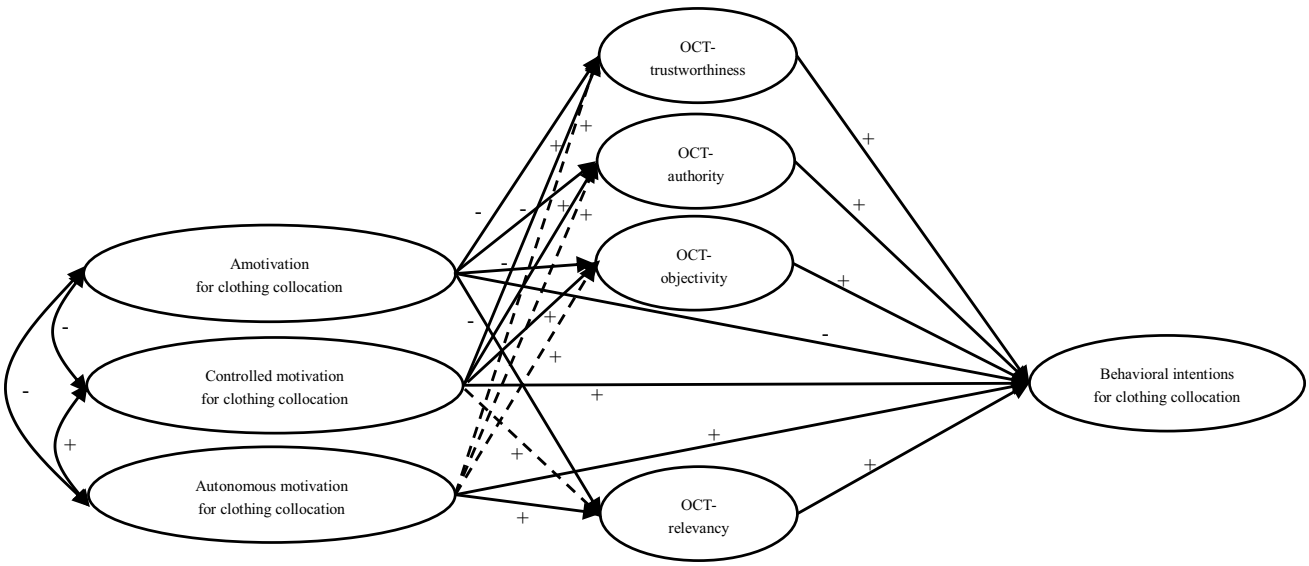

Fig. 1 Hypothesized comprehensive model (dashed links representing exploratory relationships)

OCT for information relevancy. However, due to the lack of theoretical support, its links with the other OCT practices remain exploratory (depicted in dashed lines). In contrast to these two types of clothing motivation, amotivation is negatively related to all OCT practices, suggesting that the absence of motives may result in youth's avoidance of activating and practicing any OCT on clothing-related digital information. Additionally, amotivation for clothing collocation is also negatively associated with the subsequent collocating intention, as opposed to the positive relationships between autonomous and controlled motivation and the collocating intention. On condition that these relationships are confirmed, the mediating roles of different OCT practices can further be explored to answer the following questions:

> Research question 1: Do youth's OCT practices for digital clothing information mediate the relationships between their motivation for clothing collocation (i.e., amotivation, controlled motivation, autonomous motivation) and the subsequent clothing behavioural intention?
> Research question 2: Do the mediating effects vary across different OCT practices?

Research methods

Participants

A total of 2101 Chinese youth aged 15–24 were approached randomly via Wenjuanwang (https://www.wenjuan.com/s/UZBZJvRrWH/#). They were asked to complete the online questionnaires. After the survey, data quality check was performed, removing the responses which did not pass the check. The criteria for exclusion are records with an excessive number of outliers, more than 50% missingness, or of low quality. The final sample includes 1997 youth (M_{age} = 18.68, SD = 1.99), with a relatively skewed distribution of gender (39.3% males, 60.7% females) when compared to the national statistics (53.3% males; Textor, 2021). In total, 47.5% of the participants only have a high school degree, and 52.6% have higher education as their highest level of educational attainment. Before the delivery of questionnaires, information sheets and consent forms were distributed and informed (see Appendix A). Participation was voluntary and anonymous. The scales employed in this study were translated and back-translated between English and Chinese, following Beaton et al. (2000)'s guidelines. Given that the original scales were developed in the western contexts, the reliability and validity of the scale were tested in the Chinese context.

Measures

Motivation for clothing collocation Motivation for Clothing Collocation Scale (MCCS) was revised based on the existing motivation scales validated in SDT studies (Ren et al., 2021; Ryan & Deci, 2017). The scale includes 10 items, with 2 measuring amotivation, 4 for autonomous motivation, and 4 for controlled motivation (see Appendix 1). Domain-specific content of the original items (Multidimensional Work Motivation Scale [MWMS]; Ren et al., 2021) was replaced by "clothing collocation". Examples are *The time and effort I spent on clothing collocation are worth it because it makes me feel comfortable* in the Autonomous Motivation Subscale and *If I do not collocate my clothes, I would feel anxious* in the Controlled Motivation Subscale. Participants scored their responses on a five-point Likert-scale (1 = *completely disagree*, 5 = *completely agree*). The motivation scales developed based on the SDT theories have been widely validated and employed in cross-national contexts (e.g., alpha > 0.90, Ren et al., 2021; alpha > 0.70, Zhou, 2016).

OCT practices The 11-item Critical Thought Processes Scale (Paris, 2002) was adapted to measure youth's OCT practices for clothing-related information, which includes the subscales of trustworthiness (3 items), authority (2 items), objectivity (2 items), and relevance (3 items). To better examine respondents' domain-specific OCT, clothing-related information is added to the item content. Examples are *I concern and check the qualifications, credentials, and experience of the author(s) who share clothing-related information on social media (e.g., Weibo big bloggers certification, the number of fans, bloggers' academic certificate, working experience and reputation in the fashion industry)* in the Authority Subscale and *I consider and evaluate the neutrality (e.g., personal vs. impersonal stance, facts versus opinions, the existence of biases) of the clothing-related information presented on the websites* in the Objectivity Subscale (see Appendix B). Participants responded to a 5-point Likert scale, ranging from 1 (*completely not true*) to 5 (*completely true*).

Background factors and clothing intention Items to collect personal characteristics (e.g., gender, age, education level, average income) were embedded into the above scales. In addition, participants' exposure to clothing-related information on social media (e.g., time length and frequency of usage) were also surveyed. Three indicators were designed to measure behavioural intention for clothing collocation: average time spent on clothing collocation, past behaviour and future intent of following the clothing trends on social media. The means of these item scores were calculated to reflect youth's general behavioural intention.

Data analysis

Scale validation

To validate the scales in the Chinese context, exploratory and confirmative factor analyses were conducted using SPSS 26.0.1 and Mplus 8.3. Factor models were evaluated by model parsimony, goodness of fit indices, factor loadings, and model interpretation. Items with crossed loadings were removed, on the condition that there are at least two paralleled items left in the scale measuring the same construct. Modification indices were also referred to when removing items for better model fit. Cutoff criteria of fit indices were set to comparative fit index (CFI) and Tucker-Lewis Index (TLI) above 0.90, as well as Standardized Root Mean Square Residual (SRMR) and the root mean square error of approximation (RMSEA) below 0.08. In addition to the statistical tests, cognitive interviews ($N=5$) were to be performed on condition that moderate to major modifications were done to the scale. After the calibration of the scales, Cronbach's alpha and composite reliability (CR) were estimated as measures of scale internal consistency. Coefficients > 0.5 are deemed acceptable considering the characteristics of all subscales (Streiner, 2003). Item loadings and correlation coefficients were used to check the convergent validity and discriminant validity of the scales. Average variance extracted (AVE) > 0.5 and maximum shared squared variance (MSV) lower than AVE are considered acceptable.

Correlation analysis

Descriptive analysis was performed to calculate the means and standard deviations of raw scores. However, considering the heterogeneity of items and the multidimensionality of scales, factor scores instead of mean scores were used for the subsequent correlation analysis. A correlation model was constructed using Mplus 8.3 to examine the successive relationships between personal characteristics, different types of (a)motivation for clothing collocation, OCT practices, and the behavioural intention of clothing collocation. Background factors (e.g., gender, age, education level, average income) were also included in the correlation analysis to examine the necessity to control for these factors in the subsequent mediation modeling.

Mediation analysis

On the condition that the successive links between (a) motivation, OCT practices, and the behavioural intention of clothing collocation were supported by the empirical evidence, the mediating effects of different OCT practices were analyzed using Mplus 8.3. Goodness of fit indices, path coefficients, and mediation effects were estimated. The characteristics of different mediators (i.e., OCT practices) were compared with each other.

Research results

Scale validation

The results of exploratory factor analyses with varimax rotation show (1) two factors in the OCT Scale with eigenvalues larger than 1 and one factor larger than 0.6, explaining 58.2% to 72.5% of the total variance of OCT scores; (2) two factors in the MCCS with eigenvalues larger than 1 and one factor larger than 0.8, explaining 58.9% to 67.2% of the total variance of the MCCS scores. These exploratory results, to some extent, agree with the theory-led factorial structures constructed in the existing studies, providing empirical evidence for the subsequent confirmative factor analysis.

Based on the existing theories, a four-factor model was specified for OCT and a three-factor model was constructed for clothing motivation. However, the above empirical evidence suggests that alternative structures should also be tested and compared to these established models. As indicated in Tables 1 and 2, three-factor model of OCT with items 2, 5, and 10 deleted and with two correlated residuals shows the best model fit (CFI = 0.955; TLI = 0.933, RMSEA = 0.079, SRMR = 0.038) and acceptable factor loadings ($\lambda_{items} = 0.585–0.843$, $p < 0.001$). In this model, the items designed to measure the original two domains of information trustworthiness and authority were combined into one subscale, measuring the general credibility of the information. The correlation between OCT-credibility and OCT objectivity is 0.670 ($p < 0.001$) and correlation between OCT-credibility and OCT relevancy is 0.821 ($p < 0.001$). The CFA results suggested that OCT objectivity is perfectly and positively correlated with OCT relevancy ($r = 1.000$). However, considering the conceptual differentiation of these two domains, the three-factor solution is still accepted in this study. Cognitive interviews were taken to check participants' interpretation and understanding of this solution. Content analysis results suggest that participants tend to perceive authority as one important criterion to judge whether a piece of digital information is trustworthy and credible. In addition, cross-referencing across platforms is found one popular practice employed by participants to evaluate the uptodateness of information.

The hypothesized factorial structure of clothing motivation was empirically supported. Three factor model with items 2 and 10 excluded best fits the data (CFI = 0.989; TLI = 0.981, RMSEA = 0.071, SRMR = 0.017) (see Table 1). As illustrated in Table 2, amotivation for clothing collocation is found negatively correlated with the autonomous motivation ($r = -0.672$, $p < 0.001$) and controlled motivation

Table 1 Fit indices of different factor structures of the OCT Scale and MCCS

	Model	Modification	Robust goodness-of-fit		CFI	TLI	RMSEA	SRMR
			Chi-square	df				
OCT Scale	4 correlated factors: Trustworthiness: Item 1–3 Authority: Item 4, 5 Objectivity: Item 6, 7 Relevancy: Item 8–10	All items	643.797*	29	0.918	0.873	0.103	0.046
	3 correlated factors: Credibility: Item 1–5 Objectivity: Item 6, 7 Relevancy: Item 8–10	All items	1413.947*	32	0.917	0.883	0.147	0.043
	3 correlated factors: Credibility: Item 1, 3, 4 Objectivity: Item 6, 7 Relevancy: Item 8, 9	Item 2, 5, and 10 excluded	190.766*	11	0.983	0.968	0.090	0.020
	3 correlated factors: Credibility: Item 1, 3, 4 Objectivity: Item 6, 7 Relevancy: Item 8, 9	Item 2, 5, and 10 excluded; Residules of Item 1 with 8; Residules of Item 4 with 8;	121.232*	10	0.990	0.978	0.075	0.016
MCCS	2 correlated factors	All items	2435.952*	34	0.878	0.838	0.188	0.069
	3 correlated factors	All items	1158.999*	32	0.943	0.919	0.133	0.046
	3 correlated factors	Items 10 excluded	424.318*	24	0.979	0.968	0.091	0.023
	3 correlated factors	Item 2 and 10 excluded	189.095*	17	0.989	0.981	0.071	0.017

* $p < 0.001$

(r = -0.499, $p < 0.001$). In addition, a strong and positive correlation is found between the latter two domains ($r = 0.727$, $p < 0.001$). After the modification and validation of these scales, AVE, MSV, and the internal consistency of each subscale were estimated. As indicated in Table 2, all subscales show acceptable AVE (> 0.50), except for the 2-item OCT-relevancy Scale (0.424). The discriminant validity was also checked for the MCCS (MSV < 0.529). Given that the authors decided to keep the theory-led three-factor solution of OCT practices regardless of the high factor correlations, the discriminant validity of the OCT scale was not reported. All subscales show acceptable to high Cronbach's alpha coefficients (α = 0.543-0.823) and CR (> 0.50). The internal consistency of the OCT-relevancy Scale is relatively low ($\alpha = 0.543$) but still acceptable due to its limited number of heterogeneous items (Streiner, 2003).

Correlations between motivation, OCT, behavioural intention, and background factors

Considering the heterogeneous factor loadings of items in the scales, factor scores instead of means of raw scores were used in the correlation model, in which the behavioural intention and all background variables were included as covariates of OCT practices and clothing motivation. The model shows satisfactory model fit (CFI = 0.953; TLI = 0.918, RMSEA = 0.067, SRMR = 0.049). As shown in Table 3, amotivation is negatively related to all OCT practices (rs = -0.534 — -0.254, $p < 0.001$) and the clothing collocation intention (r = -0.510, $p < 0.001$). Regarding the background variables, significant effects of gender, education levels, average income, and social media usage are found on amotivation for clothing collocation (rs = -0.375 — -0.054, $p < 0.01$). On the contrary, autonomous motivation is positively associated with all OCT types ($rs = 0.512$ — 0.781, $p < 0.001$), with the strongest relationship found between autonomous motivation and OCT-relevancy ($r = 0.781$, $p < 0.001$). Additionally, results show positive relationships between autonomous motivation and the clothing intention ($r = 0.547$, $p < 0.001$) as well as all background variables (rs = 0.058 — 0.288, $p < 0.001$). Specifically, female youth with higher education levels and more average income reported greater autonomous motivation for clothing collocation. And such motives may increase with age ($r = 0.058$, $p < 0.01$) and the growing exposure to social media ($rs = 0.273$ — 0.393, $p < 0.001$). Similarly, controlled motivation is also found to be positively linked to all OCT types ($rs = 0.436$ — 0.654, $p < 0.001$) and the clothing intention ($r = 0.398$, $p < 0.001$). However, the strength of these links is slightly weaker when compared with autonomous motivation, expect for the correlations with OCT-credibility ($r_{\text{controlled-credibility}} = 0.590$, $r_{\text{autonomous-credibility}} = 0.588$,

Table 2 Item descriptives, factor loadings, factor correlations, AVE, MSV, and reliability coefficients

	Scale dimensions	Items	Mean	SD	Factor loadings	Factor correlation		Cronbach's alpha	AVE	MSV	CR
						F2	F3				
OCT Scale	Factor 1: Credibility	1	2.691	1.051	0.710*	0.670*	0.821*	0.791	0.613	*NA*	0.826
		3	2.830	0.991	0.791*						
		4	2.797	0.980	0.843*						
	Factor 2: Objectivity	6	3.00	0.986	0.736*		1.000*	0.631	0.510	*NA*	0.676
		7	3.26	0.931	0.693*						
	Factor 3: Relevancy	8	2.89	0.972	0.711*			0.543	0.424	*NA*	0.593
		9	3.64	0.942	0.585*						
						F2	F3				
MCCS	Factor 1: Amotivation	1	2.21	0.983	0.824*	-0.672*	-0.499*	0.722	0.630	0.451	0.773
		3	2.25	0.987	0.762*						
	Factor 2: Autonomous motivation	4	3.613	0.970	0.810*		0.727*	0.823	0.673	0.529	0.861
		5	3.385	0.951	0.836*						
		6	3.661	0.949	0.815*						
	Factor 3: Controlled motivation	7	2.924	1.041	0.821*			0.787	0.611	0.249	0.824
		8	3.120	0.949	0.713*						
		9	2.939	1.008	0.806*						

* $p < 0.001$

Considering the high factor correlations, MSV for the OCT scale was not calculated

Table 3 Correlation coefficients between motivation, OCT, clothing collocation intention, and background variables

		OCT -F1	OCT -F2	OCT-F3	MCC -F1	MCC -F2	MCC -F3	Behavioral intention	Gender	Age	Education Level	Average income	Social media usage-amount
OCT Scale	Factor 1: Credibility												
	Factor 2: Objectivity	0.668**											
	Factor 3: Relevancy	0.756**	1.000**										
MCCS	Factor 1: Amotivation	-0.310**	-0.254**	-0.534**									
	Factor 2: Autonomous motivation	0.588**	0.512**	0.781**	-0.672**								
	Factor 3: Controlled motivation	0.590**	0.436**	0.654**	-0.499**	0.727**							
Behavioral intention	Intention mean	0.404**	0.325**	0.497**	-0.510**	0.547**	0.398**						
Background	Gender	0.150**	0.113**	0.268**	-0.235**	0.288**	0.125**	0.328**					
	Age	0.017	-0.005	-0.092*	-0.017	0.058*	-0.010	0.098**					
	Education	0.022	0.015	-0.074*	-0.054*	0.104**	0.000	0.118**					
	Average income	0.066*	0.105**	0.050	-0.146**	0.174**	0.055*	0.196**	0.044*	0.365**	0.460**		
	Social media usage amount	0.204**	0.175**	0.288**	-0.284**	0.273**	0.182**	0.303**	0.234**	-0.082**	-0.093**	0.015	
	Social media usage frequency	0.324**	0.195**	0.368**	-0.375**	0.393**	0.300**	0.441**	0.235**	0.032	0.047*	0.143**	0.283**

** $p < 0.001$; * $p < 0.01$

$p < 0.001$). Female youth with more average income and exposure to social media show higher levels of controlled motivation ($rs = 0.055$ — 0.300, $p < 0.01$).

Compared to clothing motivation, OCT for clothing information bears less close relationship with the subsequent behavioural intention ($rs = 0.325$ — 0.497, $p < 0.001$). Among the three OCT practices, OCT-relevancy seems to influence youth's intention for clothing collocation the most ($r = 0.497$, $p < 0.001$). All background variables other than average income were found to affect OCT-relevancy. Younger females with lower education levels and more exposure to social media show greater willingness to evaluate the relevancy of clothing information on social media ($rs = 0.092$ — 0.368, $p < 0.05$). Furthermore, the effects of gender, average income, and social media usage were found on OCT for information credibility and objectivity, indicating that female youth who have more income and exposure to social media are more willing to think critically about these two aspects of digital information of clothing ($rs = 0.066$ — 0.324, $p < 0.01$).

Different mediating effects of OCT practices

Correlation results warrant the subsequent tests of mediation models, where background variables are included as controlled variables. Considering that OCT-objectivity and OCT-relevancy are perfectly correlated, the mediating effects of OCT practices were tested in separate models. In general, the mediation analysis yields good model fit (CFI/TLI > 0.900, RMSEA/SRMR < 0.080) (see Appendix C). As illustrated in Table 4, OCT-credibility partially suppresses the negative relationship between amotivation and the clothing collocation intention ($\beta_{total} = -0.178$, $\beta_{direct} = -0.199$, $\beta_{mediation} = 0.021$, $p < 0.01$) while facilitates the positive link between autonomous motivation and the behavioural intention ($\beta_{total} = 0.203$, $\beta_{direct} = 0.147$, $\beta_{mediation} = 0.055$, $p < 0.001$). The mediating effect of OCT-credibility was found to be slightly stronger for the latter link (Relative effect size = 27.1%). Additionally, OCT-credibility also fully mediates the association between controlled motivation and intention ($\beta_{direct} = -0.014$, $p = 0.688$; $\beta_{mediation} = 0.055$, $p < 0.001$). Although the relative effect size of mediation is high (79.7%), the total effect is non-significant ($\beta_{total} = 0.040$, $p = 0.250$).

Compared to OCT-credibility, OCT-objectivity partially facilitates the positive link between autonomous motivation and youth's clothing collocation intention ($\beta_{total} = 0.204$, $\beta_{direct} = 0.166$, $\beta_{mediation} = 0.038$, $p < 0.01$). Marginally significant mediating effect ($\beta_{mediation} = 0.012$, $p = 0.058$) was found on the direct association between amotivation and the behavioural intention ($\beta_{total} = -0.179$, $\beta_{direct} = -0.191$, $p < 0.001$). As for OCT-relevancy, it is found to partially facilitate the relationship between autonomous motivation and the intention

Table 4 Total, direct, and mediating effects in three mediation models

	Effect	*P*-value	Bootstrap (95%)	Relative Effect Sizea
M1: Amotivation-OCT1-Intention				
Total Effects	-0.178	< .001	[-0.239, -0.122]	
Direct Effects	-0.199	< .001	[-0.262, -0.138]	90.5%
Mediation Effects	0.021	< .01	[0.008, 0.038]	9.5%
M1: Autonomous-OCT1-Intention				
Total Effects	0.203	< .001	[0.128, 0.278]	
Direct Effects	0.147	< .001	[0.070, 0.226]	72.4%
Mediation Effects	0.055	< .001	[0.032, 0.083]	27.1%
M1: Controlled-OCT1-Intention				
Total Effects	0.040	.250	[-0.032, 0.107]	
Direct Effects	-0.014	.688	[-0.086, 0.052]	20.3%
Mediation Effects	0.055	< .001	[0.030, 0.084]	79.7%
M2: Amotivation-OCT2-Intention				
Total Effects	-0.179	< .001	[-0.241, -0.122]	
Direct Effects	-0.191	< .001	[-0.252, -0.132]	94.1%
Mediation Effects	0.012	.058	[0.003, 0.029]	5.9%
M2: Autonomous-OCT2-Intention				
Total Effects	0.204	< .001	[0.129, 0.282]	
Direct Effects	0.166	< .001	[0.080, 0.245]	81.4%
Mediation Effects	0.038	.003	[0.017, 0.067]	18.6%
M2: Controlled-OCT2-Intention				
Total Effects	0.041	.244	[-0.032, 0.110]	
Direct Effects	0.029	.404	[-0.042, 0.098]	70.7%
Mediation Effects	0.012	.083	[0.001, 0.030]	29.3%
M3: Amotivation-OCT3-Intention				
Total Effects	-0.180	< .001	[-0.242,-0.123]	
Direct Effects	-0.176	< .001	[-0.234, -0.119]	97.8%
Mediation Effects	-0.003	.732	[-0.023, 0.015]	1.7%
M3: Autonomous-OCT3-Intention				
Total Effects	0.205	< .001	-0.129, 0.282]	
Direct Effects	0.103	.035	[0.007, 0.200]	50.2%
Mediation Effects	0.102	.001	[0.052, 0.174]	49.8%
M3: Controlled-OCT3-Intention				
Total Effects	0.041	.243	[-0.032, 0.110]	
Direct Effects	0.008	.830	[-0.066, 0.070]	19.5%
Mediation Effects	0.034	.021	[0.011, 0.073]	82.9%

Bootstrapping was set at 1000 samples

Relative effect size was calculated by |(in)direct effect| / (|direct effect| + |indirect effect|)

($\beta_{total} = 0.205$, $\beta_{direct} = 0.103$, $\beta_{mediation} = 0.102$, $p < 0.05$) while fully facilitate the link between controlled motivation and the intention ($\beta_{total} = 0.041$, $p = 0.243$; $\beta_{direct} = 0.008$, $p = 0.830$; $\beta_{mediation} = 0.034$, $p = 0.021$).

Comparing the relative effect sizes of mediators across models indicates that the strongest OCT mediator for the links between amotivation and the behavioural intention is OCT-credibility (relative effect size = 9.5%). It is followed by OCT-objectivity (relative effect size = 5.9%). Both OCT practices partially mitigate the negative direct links. As for the association between autonomous motivation and behavioural intention, the strongest mediator is OCT-relevancy (relative effect size = 49.8%), followed by OCT-credibility (relative effect size = 27.1%) and OCT-objectivity (relative effect size = 18.6%). All three OCT practices serve as a partial facilitator for the positive direct links. Unlike amotivation and autonomous motivation, which are both directly and indirectly connected with youth's behavioural intention, controlled motivation bears no significant relationship with the behavioural intention after considering the mediating effects of OCT practices. It means that OCT-relevancy (relative effect size = 82.9%) and OCT-credibility (relative effect size = 79.7%) fully mediate their positive links.

Discussion and conclusion

The first objective of this study is to examine the successive relationships between Chinese youth's motivation for clothing collocation, OCT practices, and the subsequent behavioural intention. OCT practices are interpreted in this study as youth's affective mental resources (Liu et al., 2014). Given that validated instruments to measure OCT in fashion-related domains are scarce, this study modified an existing OCT scale (Paris, 2002). The scale is designed to measure youth's understanding and willingness of OCT practices when exposed to clothing-related information on social media. Empirical evidence was gained in this study to confirm that the OCT Scale can validly and reliably measure the major OCT practices of Chinese youth. These practices differ in the objects of OCT, that is, the credibility, objectivity, and relevancy of digital clothing-related information. The two correlated item residuals can be explained by the operational overlap between the factors they measure (Items 1 and 4: cross-referencing across platforms and across information resources; Items 1 and 8: evaluating information uptodateness with cross-referencing practices).

In addition to OCT, this study also proposes a key concept of motivation for clothing collocation. Grounded on the established motivation scales (e.g., Ren et al., 2021) following SDT (Ryan & Deci, 2017), the present study theoretically and operationally divides clothing motivation into three dimensions. The complete absence of motives to collocate clothes is defined as amotivation. Opposite to amotivation are the existence of externally imposed motives (e.g., dressing codes, social norms for clothing), which is conceptualized as controlled motivation, and internally-generated volition (e.g., fulfillment of basic psychological needs, pure enjoyment) defined as autonomous motivation. The MCCS scale was validated in the Chinese context, with which this study found the co-occurrence of controlled and autonomous motivation as well as the exclusion of other motives for amotivation. Particularly, youth who lose their intrinsic clothing incentives relative to external goals are more likely to be demotivated. In general, these findings agree with the characteristics of the generic motivation proposed by many previous SDT research (e.g., Ryan & Deci, 2002, 2017).

With the validated scales, this study obtained empirical evidence to support all hypothesized correlations between different clothing motivation, OCT practices, and the behavioural intention with respect to clothing collocation. Amotivation was found to negatively relate to all other factors, which is consistent with Ryan and Deci's (2017) theory. It seems that the complete absence of clothing motives may lead to youth's avoidance of investing any time and effort on the relevant issues, particularly regarding the self-relevance of the clothing information they read (Browne et al., 2007). The effects of background factors suggest that male youth with lower education levels, less monthly income, and less social media usage show relatively higher levels of amotivation. In contrast to amotivation, autonomous and controlled motivation was found to positively link to all OCT practices and the following clothing intention. This finding indicates that the existence of cognitive stimuli, either external or internal, can not only activate more mental resources (e.g., OCT of clothing-related information on social media) but also induce more subsequent behaviour (e.g., spending time on collocating clothes, following clothing trends). Compared to controlled motivation, autonomous motivation's associations with OCT and the behavioural intention seem to be stronger, except for OCT on information credibility. This finding partially supports the dual-process reasoning model (Stanovich & West, 2000), suggesting that externally imposed clothing goals tend to trigger more CT processes on the accuracy and authority of the digital information. In addition, the finding also confirms the hypothesis that intrinsically motivated youth may pay more attention to content relevancy, activating their mental resources to evaluate whether the clothing information they read on social media is updated and applicable to themselves. So far, not enough theories or evidence are obtained to further explain the stronger link between autonomous motivation and OCT for information objectivity, a finding that is inconsistent with the hypothesis. In general, female youth with higher income are more motivated, with the better-educated ones exhibiting more intrinsic motives and the ones with heavier

exposure to digital clothing information reporting more external incentives.

The second major objective of this study is to explore the mediating effects of OCT practices on the links between youth's motivation and behavioural intention for clothing collocation. By doing this, the present study sought to reveal the roles different OCT practices play in altering the process of youth's cognition transferring into behaviour when they are exposed to vast amounts of ambiguous and segmented digital information (Ku et al., 2019). To better identify these roles, the mediating effects are interpreted and discussed by different types of motivation. Firstly, OCT-credibility and OCT-objectivity partially mitigate the negative direct links between amotivation and the behavioural intention, with the former one exerting slightly stronger impact. Amotivation for clothing collocation may lead to youth's lacking any desire or intention to spend time and efforts on clothing behaviour (Ryan & Deci, 2017). However, when youth with high levels of amotivation are passively exposed to large amount of digital clothing information, they would rather pay attention to the content credibility and objectivity than to the information relatedness. The increasing efforts they invest in these OCT practices may in turn lead to increasing behavioural intention based on the clothing information they evaluated as trustworthy and objective, which to some extent alleviates the restraining effect of amotivation on clothing intention.

Furthermore, all three OCT practices were found to serve as a facilitator for the positive direct relationships between autonomous motivation and the behavioural intention. OCT-relevancy serves as the strongest mediator. This finding suggests that, when youth are motivated by enjoyment and self-fulfillment, they tend to invest more efforts and time in processing the content and evaluating the quality of digital clothing information, especially regarding the pieces that is updated, pertinent, and suitable for themselves. During such processes, their subsequent intent to follow the promoted trends for own clothing collocation will grow, which slightly increases the facilitating effect of intrinsic motives on this intent.

Unlike amotivation and autonomous motivation, controlled motivation was found to only indirectly relate to the behavioural intention via OCT-credibility and OCT-relevancy. This finding suggests that the moderate correlation between controlled motivation and the clothing intention may be fully explained by the mediating effects of these two OCT practices. One possible explanation for this is that youth may not hold much internal intention to conduct clothing collocation behaviours when driven by social norms and dressing codes. However, the discovery of reliable and applicable information that they can use to meet the external requirements may encourage them to get dressed accordingly.

Taken together, this study was able to unravel the important roles of all major OCT practices in altering the process of youth's motivational characteristics transferring into the subsequent behavioural intention. Nevertheless, these mediating effects were found to vary across different OCT practices and motivation types. Comparatively, OCT-relevancy serves as the most influential mediator.

Implications for research and practices

The findings of this study have several important theoretical, empirical, and practical implications. Theoretically, the central contribution lies in the construction of conceptual frameworks for clothing motivation and OCT practices for digital clothing information. Extending from generic to domain-specific concepts enables scholars to probe into the characteristics and influences of youth's complex mental processes regarding a certain real-life issue. In addition, by identifying the co-occurrence of multiple psychological factors as well as their interactive effects on subsequent behaviours, this study reveals the importance of an integrative approach to the research on youth's cognitive and affective functioning. Empirically, this study provides the first attempt to measure youth's clothing motivation and OCT practices for digital clothing information. The scales that were validated in this study can be used in future studies on the same topics or reviewed as a reference to develop more domain-specific instruments. Practically, this study offers new insights into our understanding of how youth's cognitive resources interactively determine the subsequent behaviours in the face of the massive digital information on clothing and fashion. In this study, no standpoint is made on the "right and wrong" of each clothing motivation and OCT practices. Therefore, it would be of no meaning to think of designing any intervention to manipulate youth's cognitive process for "better" outcomes. Instead, with the present findings, this study is aimed at empowering youth themselves through a better understanding of their own cognitive functioning against the ambiguous and segmented information, polarizing ideas, and algorithmic biases embedded in the massive content on social media. In this vein, it is recommended that educational practitioners use these findings as guidance to assist youth to proactively and systematically practice their OCT on fashion-related information while well acknowledging the consequences of these actions to their subsequent clothing behaviours.

Limitations and future directions

Despite the aforementioned implications, this study includes some limitations that nonetheless open up promising avenues for future youth studies. Firstly, the present study exclusively taps into the affective domain of OCT practices and leaves the (meta)cognitive domains unexplored. A better understanding of the characteristics of OCT as an integral set of metacognitive, cognitive, and affective resources requires more investigation in the future. Compared to the cost-effective research methods of self-report on individuals' disposition and attitudes, measures of OCT abilities require more delicate design and consideration of the content and scope of prompts (e.g., authentic domain-specific digital materials). Secondly, many empirical data for correlation and mediation analyses were collected by the scales developed and validated in the present study, as a result of the lack of existing instruments on the according issues. Future research is therefore needed to further examine the psychometric properties of these scales (e.g., measurement invariance between groups and over time) and check their generalizability and transferability across contexts. Thirdly, the exclusive use of self-report measures in this study may bring about some concerns such as social desirability bias, self-evaluation bias, and common-method variance. Future studies can employ more measurement types (e.g., OCT tests, fieldwork observation, focus group interviews) and widen the scope of research to include other perspectives (e.g., peers, parents, teachers). Additionally, this cross-sectional study fails to provide evidence for causality inference. Whether clothing motivation determines the implementation of OCT practices or the other way around (or both) remains unclear. It is suggested that some longitudinal studies be done in the future following this research line, exploring the dynamic characteristics of these youth factors and unraveling the causal relationships among them.

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