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Reverse Teacher Questioning Strategy to Enlarge ZPD! ---- A New Approach to Improve Differentiated Classroom

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Abstract

Differentiated instruction has always been a major challenge for educators, and how to balance the learning tasks of diverse levels of learners is at the top of the list. This research is based on further exploration of the ZPD theory through quantitative analysis of the research methodology and in-depth one-on-one interviews with 12 students from an international high school in Shanghai, China. The research found that learners were not offended by tiered tasks itself, but they were offended by being assigned different tiers of tasks by their teachers and expected that they would have the choice of different learning tasks. For learning tasks, learners prefer more challenging tasks, and the reverse teacher questioning strategy, i.e. 'hard-to-easy' teacher questioning strategy, can effectively help learners to develop the ability to solve complex tasks. This constructed learning ability effectively teaches learners to ask questions, understand questions, analyse questions, and solve them. This ability can contribute to expanding the ZPD of learners with different abilities and narrowing the ability gap in a mixed ability classroom.



Full Text Article



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Keywords: ZPD;Teacher Questioning;Differentiation

Introduction

With the increasing number of learners educated from diverse backgrounds, the phenomenon of mixed ability in the classroom has gradually intensified, posing a considerable challenge for educators when teaching (Tsiplakides, 2018). These challenges encompass polarized classroom participation (Bellil, 2020), difficulty in balancing classroom progress (Hordiienko & Lomakina, 2015), and so on. As a positive response to the range of concerns surrounding mixed ability classrooms, differentiation has been introduced as an approach of coping with learner diversity to support personalised demand satisfaction for all learners from diverse backgrounds (Eikeland & Ohna, 2022). Tracking, as a method has been used for centuries in various countries such as, the UK (Ireson & Hallam, 2001) and China (Zhang & Bray, 2017), aims to minimise the pedagogical

challenges that may arise from ability differentiation by classifying mixed-ability learners into different classes for separate courses. However, such organisational differentiation can hardly perfectly stratify learners accurately, and there could always remain learners classified in unsuitable levels of courses (J. Scattergood, 2024). In addition, the dominant criteria for determining learner tiers in most schools continues to be academic performance (Ireson et al., 2005), which neglects other dimensions of competence. According to the Multiple Intelligences Theory proposed by Gardner (1983), a single criterion of intelligence to measure learners' abilities is considered incomplete. Consequently, the limitations of organisational differentiation have highlighted the emergence of the concept of instructional differentiation (Tomlinson, 2001). In other words, due to the inevitability of mixed-ability classrooms, educators' responses to such situations largely influence the quality of school instruction and learners' learning experiences (Hamre & Pianta, 2005).

Instructional differentiation has always been regarded as a creation to increase educational equity by providing equal curriculum resources to learners from different contexts (Valiandes, 2015), whereas it can occasionally in turn become a tool for educators to lower their expectations of their students (Schmoker, 2010). Educators' low or differentiated expectations can greatly exacerbate negative attitudes towards learning for some learners, especially for marginalised learners (Moon, 2005). In light of this concern, Wass & Golding (2014) argue that believing in the potential of all learners and helping them to progressively expand their ZPD (zone of proximal development) is a stronger way to motivate active learning than simply tiered instruction based on ZPD. ZPD means the gap between a learner's ability to solve a problem with assistance and independently (Yaroshevsky, 1989). Educators, as important roles during their students' learning process (Larina & Markina, 2019), can be a powerful support for scaffolding learners and then gradually remove the scaffolding to help learners develop independent learning skills and expand their own ZPD (Wass et al., 2011).

Currently, for methods of enlarging ZPD, many studies (Hussin, 2008; Mehri Kamrood et al., 2019) have mainly focused on the the power of online information technology, which can facilitate educators to dynamically monitor the ZPD of their students, and thus develop personalised learning plans tailored to the learners that can help to enlarge their ZPD. However, teacher questioning, as one of the most direct and frequently approached assessment tools by educators has been shown to be a useful way of motivating learners, dynamically assessing them, and assisting educators to adjust teaching strategies for them (Zuraidah Nasution & Syafrina Prihatini, 2024). Prior research has established that it is beneficial to cultivate learners with a larger ZPD for mixed-ability classrooms (Wass & Golding, 2014), but the specific ways in detecting dynamic changes in a learner's ZPD and enlarging it have been less frequently mentioned. Therefore, this research primarily aimed to discuss the role of using teacher questioning to support students in enlarging their ZPD on instructional dilemmas within the context of a mixed-ability classroom. Specifically, this research has been designed to fill the gap in this research area by scrutinising student perceptions of differentiated classrooms, expansion of ZPD, and teacher questioning methods through in-depth interviews that focus on student voices.

Literature Review

Differentiated instruction

Differentiated instruction is differed from streamed classes as it aims to assist learners to achieve the same learning goals by implementing different teaching strategies within one class with mixed-ability learners (Eikeland & Ohna, 2022). Differentiated instruction attempts to maximise equal knowledge and possibilities for all learners as a way to increase educational equity (Valiandes, 2015). Therefore, differentiated instruction requires educators to tailor their teaching strategy to each learner. As early as the late 1960s, Bloom's (1968) theory of mastery learning emphasised that education should allow each learner to acquire the same level of knowledge with customised learning styles. In response to the reality that customising teaching strategies for each learner is challenging to achieve, Tomlinson (2003) further proposed tiered activities as an effective approach to reducing teachers' workload, aiming to distribute appropriate learning tasks to different levels of learners. This activity is in line with the concept of tailored instruction, which attracts many scholars to research it in depth from a variety of perspectives, mainly categorised into research related to learning tasks and evaluation of learners' levels.

In research on learning tasks, most scholars advocate providing learners with a diverse choices of learning tasks to meet their different learning styles. Diverse tasks have been mainly categorised into tasks of different forms and tasks of different difficulty levels. Tasks in diverse forms can better stimulate students' multiple intelligences and promote active learning. Tomlinson & Moon, (2014) state that not every learner is good at writing essays and that learning tasks should be given to learners with options based on their different learning preferences and learning levels. Similarly, Hanewicz et al., (2017) proved this by analysing the results of cafeteria-style grading at an online university, allowing learners to self-select the course tasks that suit them can lead to increased motivation and better academic performance than ever before, as well as promoting educators to offer tasks that further reflect learners' creativity. However, considering the workload of educators and the pedagogical pressure to cope with entrance exams, tiered assignments are more often used in the three stages of further education: primary, secondary, and high school, as it is easier for educators to manage (Kanevsky, 2011). In a mixed-ability classroom, educators may spend more time with learners who require assistance to ensure they can keep up with the pace of instruction for the sake of balancing the pace of instruction, which may result in them neglecting to pay attention to intermediate learners and top learners (Mills et al., 2014). Tiered tasks can alleviate this problem effectively by allowing learners at different levels to complete tasks that match their ability levels, thereby achieving their respective learning goals and gaining a sense of self-efficacy. Kanevsky (2011) conducted a quantitative study of learning preferences of 416 gifted learners and 230 learners who were not identified as gifted and found that the majority of gifted learners tended to learn at their own pace rather than wait for those who were lagging behind, whilst those who were more behind in their learning did not want to learn under the pressure of having to catch up with their peers and were likely to be more passive. Thus, tiered tasks can contribute to motivate different hierarchical groups of learners to some extent. However, there is also a group of learners who believe that tiered tasks represent the educator's expectations, and therefore they will expect more than they are able to do because they believe that difficult tasks represent their abilities and do not want to be inferior in their classroom relative to their low position (Vehkakoski, 2012). To provide learners with diverse and high-quality learning tasks, educators' expertise in differentiated

instruction is particularly important (van Geel et al., 2018). Indeed, educator preparation levels can largely and directly affect the outcomes of differentiated instruction (Pham, 2011). An educator who can design learning tasks in advance that are aligned with the instructional objectives is more likely to make the instructional purpose of each learning task clear to the learner, thus helping the learner to better understand the purpose of the task and motivate active learning (Van Geel et al., 2018). In addition to this, the educator's ability to dynamically evaluate the learners nearly determines the effectiveness of the implementation of differentiated tasks. Since the learners' learning situation can be dynamic, the lesson plans and learning tasks should have to be adapted and changed in a timely manner so as to ensure that the learners are motivated to learn (Mills et al., 2014).

Evaluating learner levelling is a complex job for educators and there are many aspects to be considered as incorrectly levelling can cause learners to have negative attitudes towards learning (Moon, 2005). Establishing tiered criteria is the first and most critical step in this complex endeavour. Levy (2008) discovered through an educator's perspective research that evaluation of learners should not be categorised from a single standardised academic result, but rather learners' learning needs, interests and learning styles should be taken into account in determining their tier. However, Logan (2011) recognises this view whilst emphasising the important reference value of the learner's level of readiness to learn, i.e. the level of existing knowledge and ability. In fact, educators with a profound comprehension of subject knowledge along with effective assessment methods can synthesise learners' learning preferences on top of their current academic results, and make suitable decision-making recommendations for learners' tiering, which can maximise learners' motivation and academic performance (van Geel et al., 2018). It is worth noting that differentiated task tiering evaluations are recommended to be conducted at a regular frequency. Robinson et al., (2014) found from the voices of nine educators at different stages of education that differentiated evaluation needs to be a regular frequency and emphasise opportunities for re-appraisal so that it promotes learner motivation for progression. Instead, learners may become stressed and burned out by too frequent assessments, and it can be quite challenging for educators to see milestones of learner progress in a short period of time. In summary, the differentiated tiers need to be mobile to match the dynamic learning state of the learner and to empower the learners with confidence.

Enlarging ZPD and Teacher Questioning

Zone of proximal development (ZPD) is a concept developed by Vygotsky (1978) which means the distance between what a person can do with and without assistance. Lowering every learner to the same level to facilitate uniformity in teaching and learning schedules is not the original purpose of education and fails to satisfy the demands of different learners (Vygotsky, 1997). Therefore, ZPD can be a direction for educators to assess learners in the process of differentiated instruction to provide learners with the most suitable learning tasks (Magableh & Abdullah, 2021). Appropriate learning tasks under the principle of differentiated instruction should be higher than the learner's current level (Morgan, 2014) since this can greatly reduce the negative emotions that different ZPD learners may have towards learning, as learners with higher levels of proficiency may become bored with simple learning tasks, while learners with more lagging proficiency may become frustrated and unconfident with difficult tasks. Scaffold support is recognised as enabling learners to achieve goals

that were once unable to complete independently by the support of educators (Davis & Miyake, 2004). Learners can acquire methods for completing tasks from educators, and when learners have mastered the methods, the educators remove the scaffolding support, allowing learners to expand the scope of what they can do (Wass et al., 2011). (As shown in figure 1 and 2)

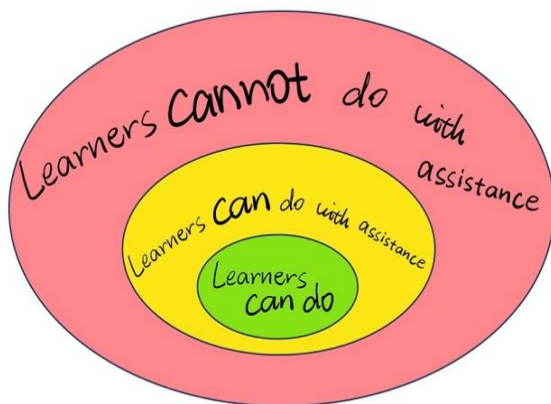


Figure 1: Learners' original ZPD

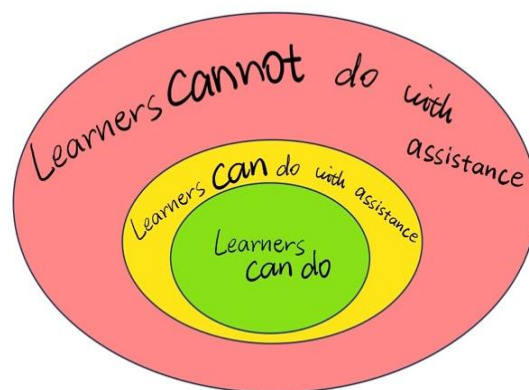


Figure 2: Learners' ZPD with scaffolding support

However, while this model does assist learners to a certain extent in progressively improving their competence, it is mainly focused on helping learners with a particular task. As learning is a constructive process (Reiser, 2004), simply improving learners' ability to acquire a specific task is hardly likely to alleviate the problem of differentiation in mixed-ability classrooms in the short term, and may even instead exacerbate the gap in ability between learners as learners at different levels are all improving the range of what they can do, making it more difficult to balance the instructional progression. In addition to this, Bodrova & Leong (2024) found that the zone in the ZPD represents that it is a developmental range rather than a fixed point (as shown in figure1). Learners' changing ZPD may allow educators to make incorrect ZPD assessments, which may cause a regression in their ZPD due to learning tasks that are behind their potential (Eun, 2019). In other words, learners may be less capable of doing as a result of incorrect teaching strategies. (As shown in figure 1 and 3)

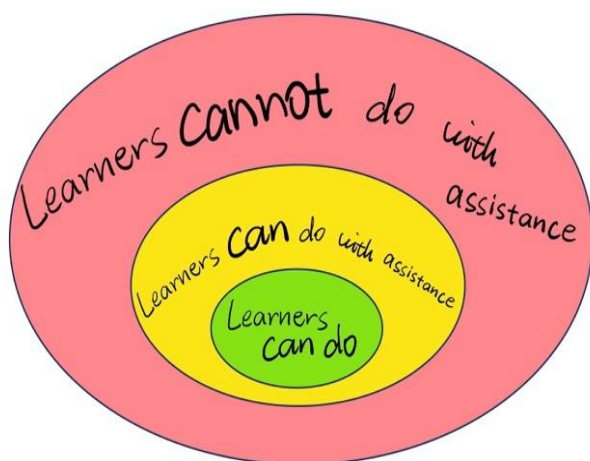


Figure 1: Learners' original ZPD

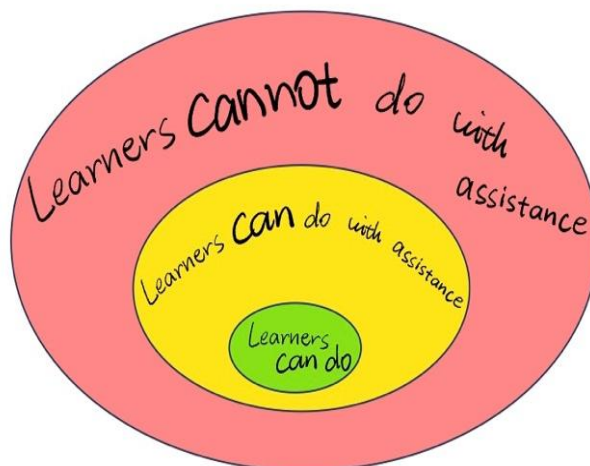


Figure 3: Learners' ZPD with incorrect teaching strategies

Learning is the reward of overcoming challenges (Reiser, 2004). When educators believe that every learner has the potential to master high-level tasks and provide structured approaches to tackling the challenges during class, there is a high possibility that learners will be motivated and work hard to achieve higher levels of academic performance with after-school time (Carroll, 1963). Suprayogi et al. (2017) survey of a random sample of educators from 145 schools in Indonesia confirms that the level of educators' recognition of constructivist instruction does strongly contribute to the outcome of differentiated instruction. The 483 learners from 8 schools in America also felt that they preferred equal learning opportunities, especially when they benefited from the educator's teaching strategies, they would also be more responsive to the learning tasks given by the educators, then this could be beneficial in alleviating the problem of differentiation in mixed ability classrooms (Rajeh Alsalhi et al., 2021). Thus, rather than having educators directly help learners to solve specific tasks, the process of teaching them to construct learning expands the possibilities of learners' potential, that is, the range of what they can do with assistance is enlarged (Reiser, 2004). (As shown in figure 1 and 4).

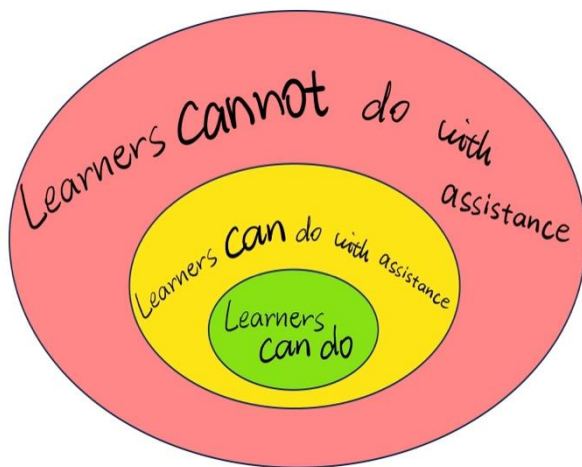


Figure 1: Learners' original ZPD

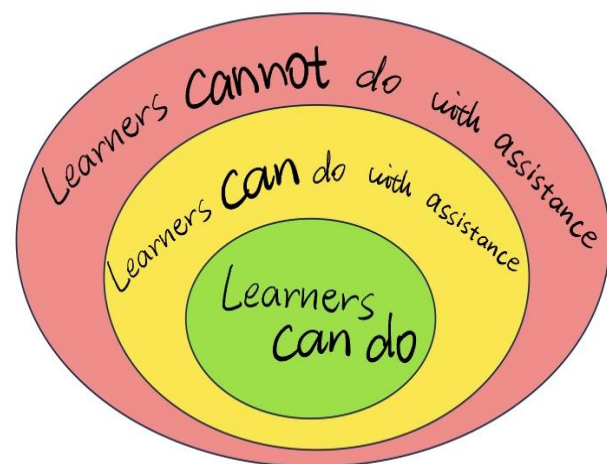


Figure 4: Learners' ZPD with constructivist instruction

In brief, enlarging the ZPD means expanding learners' potential and offering opportunities for learners to study independently after classes, which is likely to bridge the gap between mixed-ability learners more rapidly.

Enlarging ZPD means that educators need to teach learners to construct learning skills beyond the purpose of completing a single task, i.e. learners have to learn to raise questions, analyse them and then solve these questions independently (Jiang et al., 2022). For the learner's ability to construct learning skills which is not easy to be noticed, this internal potential requires the guidance and support of a more professional and more experienced person (Yaroshevsky, 1989). In differentiated instruction, educators can become this role through effective teaching strategies. Teacher questioning, as an effective formative assessment tool, can not only constantly monitor learners' dynamic learning (Martin-Beltrán et al., 2017) and enhance learners' attention in the classroom (Fraser, 2000), but also promote learners' logical thinking skills (Brough, 2012) as a way of

broadening learners' potential ZPD and promoting them as more independent learners. As a dynamic learning assessment tool, the core of teacher questioning (TQ) is to capture learners' performance data to inform classroom instructional planning (Heritage & Heritage, 2013), so class engagement is extremely important. Learners' engagement in a differentiated classroom is primarily related to the learning environment and the educators' feedback (Wass & Golding, 2014). Learners often hesitate to challenge for fear of not receiving useful feedback and being teased. Educators can support learners to identify their mistakes and find the right answers on their own through guided questioning, which can give them more confidence in learning as well as develop their reflective skills and independent learning skills (Harlen, 2001). The whole-class oriented educator questioning style of collective dialogue can also engage more learners in classroom dialogue by creating an atmosphere of teacher-student co-participation (van Compernelle & Williams, 2013). As a tool for cultivating thinking skills, TQ needs to be conducted in a logical order. Progressive questioning, a questioning approach that allows each learner to gradually transition to their next level of ZPD by progressively increasing the level of question, can provide learners with a mindset for constructive learning (Calder, 2015). Anderson et al. (2001) summarise the constructive learning process into six learning stages, which could be an effective theoretical foundation for progressive questioning. These six stages are remembering, understanding, applying, analysing, evaluating, and creating (Anderson et al., 2001, p67-68). This inquiry-based approach to learning enables learners to learn how to construct their own learning by independently using the strategy of asking questions, analysing the questions, and then solving them step by step (Brown et. al, 2000).

Overall, most of the current research focuses on the educators' perspectives on the views and strategies of differentiated instruction. The research on how learners perceive differentiated instruction is also a valuable reference for the implementation of differentiated instruction, which is the focus of this research. Other than that, most research is currently stuck on the topic related to assisting with differentiated instruction by scaffolding support for extending the scope of what learners can do, while whether learners can mitigate the instructional challenges of the mixed-ability classroom by expanding the scope of what they can do with assistance, i.e., by enlarging their ZPD, has not been widely addressed. Therefore, the three main research questions emerged as follows:

RQ1: What are learners' attitudes towards tiered tasks?

RQ2: In what ways can TQ influence learners' attitudes towards tiered tasks?

RQ3: How can TQ be improved to better contribute to enlarging learners' ZPD?

Methodology

Philosophy Stance

Differentiation always exists in the world, but it can be given diverse meanings by the researchers with different perspectives of understanding (Junjie & Yingxin, 2022). Therefore, this research is grounded in an interpretivist research stance, aiming to focus on individual voices in the context of such a universal phenomenon (Moustakas, 1994). As objects become complex once they are associated with society, the understanding of a single object tends not to be monolithic (Saunders et al., 2012). The interpretivist stance emphasises more on the process of reconstructing understanding

(Creswell, 2007) within the context of pre-existing perceptions of commonality (Hammersley, 2013), which increases the enrichment of the data that can be referenced (Al Riyami, 2015).

Research Design

This research applied semi-structured in-depth interviews in an attempt to dig deeper into different voices to shed some new insights into the long-standing dilemma of the mixed-ability classroom. The interviews were conducted with high school students, who are at an age that is easily influenced by others' statements (Litosseliti, 2018). Compare with focus group interviews, one-on-one interviews emphasise the individual's voice to a greater extent. Focus group interviews are difficult to get a high level of participation from each interviewee and some voices might be ignored (Kitzinger, 1994), depriving the researcher of the opportunity to gain insight into individual perspectives (Morgan, 1996). Therefore, this research did not utilize the more efficient focus group interviews to ensure the depth and accuracy of the data. Besides, semi-structured in-depth interviews are more conducive for the researcher to build trust with the participants (Roller & Lavrakas, 2018), to detect the authenticity of the participants' answers through multiple perspectives, as well as to tap into the inner truth of more interviewees (Denzin & Lincoln, 2003).

Sampling

The sample for this research was selected from a Shanghai international high school with four students in the top 15 per cent of the school's overall rankings in the 2023 IGCSE exams, four students in the top 15-70 per cent of the rankings, and four students in the bottom 30 per cent of the rankings, respectively. This research adopted a quota sampling method of voluntary enrolment, whereby four students were randomly selected from the list of students in each stratum respectively for in-depth interviews of about 45-70 minutes. This sampling method partly ensured a high level of willingness to participate (Berinsky, 2006), a high level of interest (Yang & Banamah, 2014), and a more comprehensive understanding of different levels of student perspectives among the participants of this research. Although the sample may limit a certain amount of external validity (Gschwend, 2005), this research aims to examine the authentic perceptions of mixed-ability students in the same learning environment. Therefore, it is more conducive to the validity of this research to be in the same high school. This research was based on the fact that all interviewees who participated in signed an informed consent form and participants were informed that they had the right to withdraw from the research at any time during the process.

Data Collection

Data were collected with consented recording equipment to facilitate subsequent transcription. Due to the uncertainty of semi-structured one-on-one interviews, the interview time for each interviewer was controlled to be around 45-70 minutes. This period proved to be the most appropriate time for exploring the insights of each interviewer after the pilot interviews with the two high school students.

Findings

Demographic for participants

Participant first name (pseudonym)	Number of A's achieved	Number of B's achieved	Number of C's achieved	Number of D's achieved	Number of F's achieved
Chen	6	0	0	0	0
Julia	5	1	0	0	0
Roxie	5	0	1	0	0
Delilah	4	2	0	0	0
Frisk	4	0	0	1	1
Jovan	3	1	1	0	1
Kenneth	3		3	0	0
Orlando	2	3	1	0	0
Zack	0	1	1	1	3
William	0	0	2	1	3
Kimi	0	0	1	1	4
Jerry	0	0	0	0	6

Table 1: 2023 IGCSE Exam Results for 12 Shanghai International High School Students

As the table shows, they are categorised into three groups of students based on their IGCSE results. It is clear to see that even at the same performance level, each sample is highly representative. For example, Chen, Julia, and Delilah achieved high grades in almost all subjects, while Roxie, who mostly performed well, achieved a C in one subject. This situation also exists for intermediate level students, Frisk, Jovan both achieved A in their subjects, they also failed in their subjects, which means that this group of students have some academic ability but have extreme learning outcomes in some subjects. It is well worth listening to the voices of the students at the lower levels about the mixed-ability classroom, as Jerry did not pass in any subject, and the other students had a higher failure rate. The results of the interviews with these 12 samples were analysed, inducted and in turn answered the three research questions.

Students' Attitudes Towards Differentiated Tasks

It was surprising that the majority of the participants had negative attitudes towards the tired tasks and the reasons were different amongst the learners from each different level. Feeling abandoned by the educators is the main reason for the most complaints about tired tasks among intermediate and lower-level learners. A high proportion of learners, even at the intermediate and low levels, believe that their unimpressive academic performance is only temporary, and being assigned to do lower-level tasks makes them feel distrusted and unrecognised by the educators. This negative emotion of being publicly defined as an inferior leads to a high risk of learners' losing confidence in their learning and thus giving up on progress and endeavour. Meanwhile, teacher beliefs are motivating some high-level learners such as Chen and Roxie, and the recognition they receive from their educators greatly stimulates them to be more motivated, persistent, and active in their learning. These learners develop confidence from the tiered tasks and define themselves as gifted learners. To maintain their current affirmation of themselves, they strive harder and spend more time completing tasks at high quality and actively participating in class. Contrary to this phenomenon, Julia and Delilah, also from a high-level group, showed a different perspective, preferring to define what

tasks they should accomplish at their own pace. Rather than being recognised, they have a greater interest in witnessing progress in their own learning outcomes. Rather than being arranged, they trust their own judgement of their individual learning status as they sometimes also need to take breaks and consolidate their fundamental knowledge.

Vague tiering criteria as well as promotion systems are another major reason why tiered tasks are criticised by learners, especially for intermediate students. Orlando and Jovan, as well as Frisk, all mentioned their doubts about the tiering criteria, arguing that they shouldn't be measured only by a certain number of exams, as opposed to possibly ignoring their potential and abandoning the possibility of progress. Specifically of note, all three students emphasised that the unclear promotion mechanism gave them a lack of motivation to work hard because they were worried about wasting time as feeling uncertain to find out how hard they should work to get into a higher-level group. However, a task that requires less thinking skills may cause more boredom for some students, especially those who are less self-motivated and less interested in learning, such as Jerry, who may be more encouraged by tasks that require more thinking.

Factors Influencing How TQ Affects Learners' Attitudes Towards Tiered Tasks

Despite the learners' conflicting attitudes towards the tiered task, they all agreed that teacher questioning could greatly influence their attitudes towards the tiered task. Enhancing learners' problem-solving skills was the most frequently mentioned effect of TQ for learners' positive attitudes towards tiered tasks. Over half of the learners indicated that the primary reason for their negative attitude towards pursuing a higher-level task was attributable to their confusion of how to achieve it. Prolonged disorientation with high level tasks leads to a perception that they are not capable of doing them. However, TQ can assist students in becoming constructed learners by guiding them to break down a complex problem into a simple one and solving it step by step.

Julia stated: "TQ gives me a sense of direction in my learning, if I could know ways to learn better and do more difficult tasks, I would be more motivated to learn and would be more willing to spend time on self-study after school." Also, William agrees, "Sometimes, I'm not good at a certain class is probably due to my lack of fundamental knowledge, but I would like to keep up with the class through my own efforts, and TQ has shown me the process of progressively learning to identify a question, ask a question, simplify the question, and solve the questions one by one. Mastering this method of learning gives me the opportunity to work hard after class, and to be able to keep up with the class on my own, I think I would be more than happy to do so." In fact, this teaching method also provides learning with fun as Chen explained that this learning process guided by TQ gave her the feeling of playing a deduction game.

Another contribution of TQ is to build students' confidence in their learning. Providing some learners with tasks that exceed their current ZPD can greatly promote learners' confidence in themselves by demonstrating the teacher's belief in them. Being given the trust of the ability to complete more difficult tasks is a powerful incentive to push learners into challenges. Especially when a learner fails to answer a question, instead of switching to others or directly announcing the answer, educators can greatly boost the learner's interest in learning by gradually guiding him to solve the problem with relatively lower level of questions. Learning is an interest-driven activity. Both Williams and Zack emphasised that the educators' follow up questions gave them a sense of

not being abandoned and a greater willingness to respond with a positive attitude towards learning. In addition, some learners mentioned that the TQ could help them concentrate better in class. Learners often fail to engage in the classroom because of low self-control, which is particularly widespread among low- and middle- level learners.

"With the fear of embarrassment of not being able to answer random questions from the educator, I can stick to the class more than I used to. Even though there are still times when I may be distracted, TQ serve as a warning to remind me to be active in the classroom." Jovan states. Overall, it is highly likely that effective TQ can involve more learners actively participating in the classroom while developing their independent thinking skills and providing them with the confidence to learn independently.

Effective Implementation Strategy for Expanding Learners' ZPD through TQ

Since TQ can stimulate learners' desire to explore their self-potential, it is a vital concern for both educators and learners in how to implement it with effective teaching methods. Class participation and constructive learning acquisition ability were identified by interviewees as the predominant pathways by which TQ could expand ZPD.

Firstly, empowering learners with confidence and courage to actively engage in the classroom is a determining factor in classroom participation. Almost all participants appreciate a relaxed, supportive class environment, providing them with more motivation to respond to the teachers' questions. Classes with equal teacher-student power relationships are more likely to encourage learners' willingness to speak as they believe their statements will be valued (Donnelly et al., 2014). "I would be more willing to answer questions if the teacher actively split the questions I could not answer into simple ones, rather than blaming me." (William)

Being in a position to express opinions and ideas without restriction is a reflection of the respect that educators show to their students. This respectful teacher-student relationship creates a relaxed classroom atmosphere and is a major contributor to the learners' participation in TQ. In a stress-free class atmosphere, appropriate follow-up questions can instead give learners the sense of being valued more than feeling pressurised. On top of that, many students are trapped by the fact that they are too lazy to think in class. Many participants indicated that positive teacher questioning can contribute to building their confidence. "To prevent wasting time, most teachers will simply switch the chance to another learner when I fail to answer a question, which will make me lazier to think and lose confidence." (Orlando)

Secondly, the majority of the intermediate and high-level learners regarded cultivating their constructive learning skills as the dominant function of TQ, which assist learners to learn independently and expand their ZPD. Surprisingly, more than half respondents expressed that the traditional "easy-to-hard" TQ, i.e., from memory questions to creative questions, which is based on the learning taxonomy theory (Anderson et al., 2001), did not stimulate their active learning as much as the "hard-to-easy" TQ. "I often fail to remember the most basic knowledge, but that does not mean that I would not like to be asked high-level questions, because that can provoke me to active thinking. (Jovan) "Some questions close to real life examples make me feel able to participate in the class. These types of questions are usually creation type questions and I prefer them more. " (Jerry)

Jovan and Jerry strongly expressed that a challenging question was more likely to arouse their learning interest, and it is important to note that they are relatively low-level learners. On this basis, one finding that surprised me was that a number of interviewees mentioned that this kind of reverse questioning could even guide them to develop constructed learning skills. "If teacher directly ask me the challenging question, it will actually help me pinpoint where my current bottlenecks are. During the process of the teacher's constant simplification of the problem, it allows me to learn how to independently identify my problems and the path to solving them." (Roxie) "Solving problems step-by-step with the teachers' guidance can inspire me a lot to tackle problems when I learn independently." (Julia)

This finding is transformative, and it challenges educators' reliance on progressively questioning. At the same time, both Delilah and Frisk have complemented that teachers' repetitive questioning allows learners to test their learning in a timely manner as well as providing a way for learners to construct their learning.

Discussion

Based on the findings, this research found that even though tiered tasks can assist educators to personalise as many learning tasks as possible for learners within limited time, there are still more negative repercussions than positive effects amongst learners.

Difficulties in the implementation of tiered tasks are mainly due to the complexity of the learner's psychology and the complexity of the educator's assessment of the stratification. The purpose of educators implementing tiered tasks is primarily to assist different levels of learners to match suitable learning tasks to promote their self-confidence and learning motivation. However, this assumption is quite contrary to the voices of some learners. In fact, learners are also craving to be assigned tasks that are beyond their ability due to multiple factors such as peer pressure, self-esteem, and parental expectations.

This phenomenon may be attributed to the learners' perception of the learning task as a sign of their status within the class, but also to a large extent to the concern that the diminishing teacher's belief and to their self-pursuit of self, more generally. In addition to, in mixed-ability classrooms, educators sometimes tend to assign more or harder tasks to higher-level learners because if they are given tasks that are below their ZPD, it may result in a regression of their ZPD. Such tasks do motivate a large proportion of high-level learners based on their sense of self-efficacy, however, there are also learners who would prefer to be assigned the same amount of work with other levels to ensure fairness. Therefore, rather than being assigned a hierarchy of tasks by the educator, allowing learners to self-select the tasks may contribute to their learning motivation to a greater extent. In this process, educators need to be professionally trained to ensure that they properly convey the nature and purpose of tiered learning tasks to their students, and to ensure that appropriate learning tasks are designed, for example, by balancing the amount of time spent on each tier task.

As learning is an ever-changing process, teacher questioning not only supports teachers in quickly assessing students' abilities, but also helps students to conduct their own self-assessment (Patterson et al., 2009) to help them choose the most appropriate tasks for themselves. On top of that, it is a valuable teaching tool for educators to develop students' constructive learning skills. In a

mixed-ability group of students with diverse capabilities, there is a greater need to be taught a systematic process of self-learning than one-on-one scaffolding services. Teacher questioning enables learners to form the learning habit of identifying, processing, understanding, and solving questions, which dares many learners to challenge tasks that are much beyond the scope of their ZPD. Once they gain self-efficacy and enjoyment in the learning process, along with their independent learning hours, it would not take long to expand their ZPD and narrow the gap in a mixed-ability classroom.

In order to be an effective teaching tool, teacher questioning was considered necessary to guarantee logic and active student participation. Teacher questioning can indeed contribute in terms of classroom engagement by asking more realistically relevant questions to arouse students' interest in learning and help them to concentrate. However, it is a matter of concern that reverse questioning---‘hard-to-easy’ teaching questioning strategy seems to be more likely to stimulate learners' potential and interest than questioning strategy in accordance with the 6 stages of learning identified by Anderson et al. (2001). Learners are more likely to be attracted to a challenging, creativity-requiring task because each learner has his or her own strengths. Faced with tasks beyond their current capabilities, they may encounter some specific challenges in their problem solving, and this logical process of reverse questioning strategy helps learners to develop a constructive learning approach on how to ask questions, analyse problems and solve them.

Conclusion

In conclusion, valuing every voice is essential. Marginalised learners in the mixed ability classroom need to be valued, whilst at the same time high level students should be avoided at the expense of, and intermediate learners will also struggle with individualised needs. Therefore, as an educator, giving each student the possibility to improve his or her competence by developing the ability to construct learning is an effective way to shorten the competence gap in a mixed-ability classroom. Rather than scaffolding learners to help them increase the range of what they can do, a more long-term beneficial approach is to teach learners to construct learning in a way that expands each learner's potential, which is their ZPD.

Limitations and Future Research

This research proposes that ZPD be extended by learners through educators' guidance on learning methods combined with their own extra effort to help balance the mixed ability classroom. This is less suitable for areas where there is a particular need for the foundational competencies of past learning, such as language teaching. In addition to this, the teaching methods in this research need to be constantly adapted by the educators to the actual situation, assuming that there are learners in the class with very low self-control who do not study independently at all after class, the differentiation will instead grow and then it will be necessary to resort to the use of a combination of more differentiated teaching methods. This method of reverse questioning was analysed and evaluated based on the findings of this study, and has not been empirically investigated, so the effectiveness of the practice needs to be verified in future studies. In addition, which subjects this method is applicable to, or which types of subjects and how they are categorized all require to be further researched and discovered.

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Conflict of Interest

I declare no conflict of interest.

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Research on the influence of equity pledge on corporate performance of cultural media listed companies

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Abstract

In China's capital market, equity pledge has emerged as a prevalent financial phenomenon, characterized by its low loan cost, abbreviated loan process, and rapid approval time. This trend continues to escalate. However, equity pledge frequently triggers explosions, and the market is reproached for its equity pledge issues. Equity pledge, although it brings convenience, also exposes potential high-risk situations, sparking widespread concerns and skepticism in the market.

In this study, panel data from 99 selected listed companies, spanning 2018 to 2022, are selected as research samples, and a model is constructed to examine the relationship between the equity pledge of controlling shareholders and corporate performance. The findings are as follows: (1) There is a significant negative correlation between the shareholding pledge of controlling shareholders and the company's operating results. The regression remains significant even after controlling for some variables and further controlling for the annual and individual effects. (2) The findings of the Bootstrap mediation effect test demonstrate a significant mediating influence of financing constraints on equity pledges and corporate performance. Moreover, the results of the significance level and regression coefficient symbol reveal that the equity pledge of controlling shareholders exacerbates the restrictive impact on corporate performance by alleviating the intermediary path of financing constraints encountered by enterprises.



Full Text Article



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Keywords: Controlling shareholder; Equity pledge; Equity pledge

Background and implications

Background

Compared with the traditional way of pledging physical assets, equity pledge is essentially an innovative right pledge. In 2013, the promulgation of the Business Methods for Stock Pledge Repurchase Transactions and Registration and Settlement marked a critical stage of development for the equity pledge system. Since the release of the registration and settlement business method in 2013, securities companies have standardized the pledge behavior, and the market financing behavior of equity pledge has developed explosively. In 2017, the China Securities Regulatory Commission (CSRC) issued a series of regulations on the reduction of shareholdings by major shareholders and private placements to restrict listed companies from obtaining funds through shareholding reductions, As well as the downward pressure of downgrading in 2018, bank loans have obvious policy tendencies, harsh loan conditions, cumbersome procedures, etc., resulting in limited financing channels for major shareholders. As of December 2022, 38.588 billion shares have been pledged by A-share listed companies, and 11.386 billion shares have been pledged by listed companies in the culture and media category, accounting for 9.5% of the total A-share market².

Research implications

From a theoretical point of view, this paper further explores how equity pledge affects the performance of firms, and provides a new research direction for the economic impact of equity pledge. In recent years, due to the gradual expansion of the scale of equity pledges, the deviation between cash flow rights and control rights has made the second type of agency problem more serious, and the resulting risks have become more and more obvious. From the perspective of financing constraints, this study explores the close relationship between equity pledge and firm performance. Based on the characteristics of property rights, we have conducted more detailed research to further deepen the understanding of how equity pledge affects corporate performance, which is of far-reaching significance for theoretical research. At the same time, by systematically combing the equity pledge announcement of the controlling shareholder, it is found that the existing industry research is relatively scarce, and the impact of equity pledge on corporate performance is analyzed and studied by taking the cultural media industry as the research object, which is helpful to improve investors' understanding of equity pledge.

From a practical point of view, major shareholders in the culture and media industry frequently "hollow out" enterprises. Given that the industry is under tremendous pressure to raise funds, it has become a common practice to raise capital through equity pledges. The possible impact of this industry and the corresponding strategies to deal with it are almost always hotly debated by the

public. On this basis, this paper examines the internal relationship between the controlling shareholder's equity pledge and the company's performance, which can guide the rational operation of the enterprise and promote technological innovation. At the same time, it will also help improve China's equity pledge system. From the perspective of the intermediary effect of financing constraints, this paper reveals how the equity pledge of controlling shareholders affects the performance of the company, which helps enterprises to better understand how financing constraints affect the performance, and also helps enterprises to understand the financing behavior of listed companies more accurately.

Literature research

Research on the motivation and risk of equity pledge

Although the equity pledge is mainly a personal financing act of the major shareholder, according to the original intention and intention of the major shareholder, this behavior can be divided into two different motives: good faith and bad faith.

Equity pledges under bona fide motives usually reflect the confidence of the majority shareholder in the company and their positive expectations for future development. They may use the pledged funds for the company's business development, technological innovation, or debt repayment, etc., with the aim of enhancing the company's competitiveness and market position. Equity pledge under this motive often contributes to the long-term development of the company and may bring stability and growth in the stock price. Many scholars believe that the pledge of shares by listed companies is not done in good faith. Philip, J., Author2, L., & Author3, M. (2016). argue that the better a company's financial and operational performance, the more likely it is that the controlling shareholder will transfer the company's interests to itself by providing external guarantees or conducting related party transactions. Chan, K., Smith, I. J., & Johnson, A. B. (2013). argue that controlling shareholders use their equity to seek their own personal gains, pledge the funds raised to repurchase the shares of listed companies, so as to increase their shareholdings, thereby strengthening their controlling position and seeking private interests for themselves. Some scholars have also pointed out that the core purpose of shareholders' equity pledge is to stabilize their controlling position, and in this process, equity pledge is mainly used as a temporary means, and in order to avoid loss of control, controlling shareholders holding pledged equity are often inclined to release positive information and send positive signals to the market. In order to maintain the stability of the company's stock price and maintain its own interests and control (Lee, J., Smith, A., Johnson, B., & others (2004)) argue that after the equity pledge, although the controlling shareholder retains control of the company, its cash flow rights are restricted, which may lead it to

focus more on short-term interests, and even pursue private gains at the expense of the interests of the company and minority shareholders .

Under the malicious motive of equity pledge, the controlling shareholder is more inclined to use the equity pledge as a means to satisfy personal self-interest, rather than really promote the development of the enterprise. After the equity pledge, the deviation between the control and the cash flow right is intensified, and while the control remains unchanged, the cash flow right is reduced, and the controlling shareholder can complete the hollowing out at a relatively small cost. This kind of behavior is often at the expense of the interests of the company and minority shareholders, reflecting the bad motives and potential risks of the controlling shareholders behind the equity pledge. There is a positive correlation between the motivation of encroachment and the degree of deviation between the two powers. With the increase of the motivation for embezzlement, the conflict between the controlling shareholder and the minority shareholder will often be exacerbated, especially when the major shareholder itself faces financial constraints or the enterprise faces financing constraints, and the conflict between the two parties further escalates. To sum up, many scholars believe that the financing method of equity pledge chosen by major shareholders is to satisfy their private interests and encroach on the rights and interests of small and medium-sized shareholders.

Equity pledge and financing constraints

In the existing literature, most of them believe that there is a significant positive correlation between the financing constraints of enterprises and the equity pledge behavior. Cheng, H., Wang, J., Zhang, L., & others (2021) argue that compared with other financing methods, equity pledge is easy to operate and can alleviate the company's financial pressure in a short period of time, but at the same time, shareholders' equity pledge behavior will also affect the company's financing constraints, and there is a two-way causal relationship between the two . The convenience of equity pledge alleviates the financing constraints of companies, but companies need to carefully weigh the pros and cons when conducting equity pledge financing (Pang, C., & Wang, Y. (2020) .

Financing constraints and firm performance

Mainstream academic views and a large number of practices have proved that under the influence of the corresponding "intermediary", equity pledge will inhibit the improvement of enterprise performance to a certain extent. Based on the literature and the theory of two-power deviation and principal-agent, this paper uses financing constraints as an intermediary to form the impact transmission path of equity pledge-financing constraint-enterprise performance. Chen, Y., & Hu, J. (2001) argue that during a bear market, the overall stock market underperforms and stock prices generally fall, which puts more pressure on shareholders who obtain funds through equity pledges .

Research on the relationship between equity pledge and enterprise performance

At present, more scholars believe that equity pledge has an adverse impact on corporate performance.

From the perspective of the separation of rights and the hollowing out of major shareholders, according to the research of Wang, Y. C., & Chou, R. K. (2018), the pledge of equity may aggravate the problem of agency and have a negative impact on listed companies. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1999) argue that the size of the cash flow right greatly affects the decision-making and behavior of the controlling shareholder, and that under the same conditions, increasing the size of the cash flow right can help to motivate the controlling shareholder to increase the value of the enterprise while reducing the encroachment on the company's interests. By enhancing the separation of the two rights and reducing the cash flow rights, the equity pledge reduces the enthusiasm of the listed company to enhance its value, and may lead to a series of behaviors that are not conducive to the development of the company. These actions not only lead to the misuse and waste of corporate resources, but also undermine the company's governance structure and market confidence. In terms of finance, the hollowing out behavior may lead to the rupture of the company's capital chain, the decline of profitability, and the weakening of debt repayment ability. On the market side, embezzlement and hollowing out may raise investors' concerns about corporate governance and future development, leading to consequences such as falling stock prices and shrinking market capitalization, which in turn can adversely affect corporate performance.

Literature review

In general, equity pledge research has focused on the drivers behind it and its impact on the economy. As for the causes of equity pledge and its impact on the company's operation, the academic community has not yet reached a unified conclusion. Many scholars generally hold the view that the core goal of major shareholders to pledge shares is to obtain more funds, strengthen their control, and hollow out assets. Hollowing out behavior may take many forms, such as malicious appropriation of listed companies' funds, related party guarantees, related party transactions, etc. These actions are not only harmful to the interests of the company, but also to the interests of other shareholders and creditors. There is no consistent conclusion on how the equity pledge of major shareholders affects the performance of the company, and some studies believe that the equity pledge makes the major shareholder face greater agency conflict and encroachment potential, and damages the company's performance. Other studies suggest that when stock prices fall, major shareholders face higher risk and the risk of a change of control, so they will focus on improving the company's performance to avoid a shift in control.

Regarding the relationship between equity pledge and financing constraints and firm performance, the mainstream view is that equity pledge exacerbates the financing constraints of firms, which in turn adversely affects firm performance. After the equity pledge, the majority shareholder may focus more on short-term interests and ignore the long-term development of the company. Such short-sighted behavior can damage the company's reputation and credibility, which in turn can affect the company's ability to raise funds. Financing constraints limit companies' sources of capital, making it difficult to obtain sufficient funding to drive business development and expansion. When a company faces financing constraints, it may not be able to obtain the required funds in a timely manner to support its key activities such as innovation, R&D, and marketing, which affects the competitiveness and market position of the enterprise. This restriction can cause businesses to miss out on good business opportunities, limiting their potential for growth and development.

Theoretical analysis and research hypotheses

The impact of the controlling shareholder's equity pledge on corporate performance

The company's performance mirrors its operations, and the controlling shareholder's equity pledge, though personal, may impact performance. This study examines this based on theories:

Principal-agent theory suggests ownership-management separation boosts efficiency but agents may harm owners due to personal interests or information asymmetry, weakening equity incentives' impact.

Information asymmetry theory notes information gaps can harm minorities, raise financing challenges, and trigger adverse selection and moral hazard.

Separation of powers theory highlights conflicts between controlling and minority shareholders, exacerbated by equity pledges, risking fund misappropriation and damaging firm reputation.

Signaling Theory explains how equity pledges signal financial needs, influencing market perceptions and stock prices.

Hence, the study hypothesizes H1: higher controlling shareholder pledge ratios correlate negatively with cultural media enterprise performance.

Financing constraints and the impact of equity pledges and firm performance

Myers and Majluf (1984) noted information asymmetry limits internal financing, with insiders having an edge. This leads to "adverse selection" where managers may conceal unfavorable info to boost external investor confidence. Post-financing, high supervision costs risk fund misappropriation. Financing constraints force enterprises to abandon potential projects, weakening competitiveness and raising costs. Based on this, this paper proposes hypotheses: H2 - higher controlling shareholder pledge ratios lead to stronger financing constraints; H3 - financing constraints partially mediate the impact of equity pledge on enterprise performance.

Study design

Sample selection and data sources

This study examines A-share media firms (2018-2022) as the research sample, and the specific data sample is adjusted according to the following criteria:

- (1) Excluding the sample of enterprises listed after 2018;
- (2) Excluding samples in special states and missing data, there are problems of uneven quality in the information disclosure of China's cultural media industry, and the exclusion of such companies can ensure the integrity and comparability of research samples and avoid bias and misleading due to insufficient information disclosure;
- (3) Excluding listed companies with major asset restructuring, major asset restructuring often involves a large amount of capital flow and asset replacement, which may lead to sharp fluctuations in the company's financial data in the short term. Such fluctuations may not only conceal the true operating conditions of the company, mislead investors and researchers about the company's judgment, but also greatly reduce the correlation between the equity pledge and the company's operating results.
- (4) Listed companies that were ST and *ST in 2018-2022 will be excluded;

In the end, a sample of 99 companies that met the requirements was obtained.

The study relied primarily on publicly available and manually collected data on corporate annual reports, announcements, and corporate websites, most of which involved financial information derived from the CSMAR database and cross-validated data. In this study, Stata 15.0 was used to analyze and process the data preliminarily processed by Excel for more in-depth analysis and processing, and the relationship between variables and influencing factors were explored.

Variable selection

Explanatory variables

Enterprise performance reflects profitability and operator efficiency in a business cycle, indicating operating quality. Most scholars use accounting (e.g., ROA, ROE) and market indicators (e.g., Tobin's Q, P/E ratio) to evaluate it. This study chose ROA as the performance criterion.

Explanatory variables

This paper, following previous scholars, uses two variables to measure controlling shareholder pledge: Pledge1 (continuous, indicating pledge ratio) and Pledge2 (dummy, indicating whether pledged at year-end, valued as 1 or 0).

Mediation variables

To reflect financing constraints of China's cultural and media listed companies, this study uses univariate (e.g., current ratio, cash holding changes, company size) and multivariate indicators (KZ, SA, WW). The KZ index, proposed by Kaplan and Zingales, measures financing constraints using an ordered Logit model. Higher KZ values indicate greater constraints. Due to its academic acclaim, the KZ index is adopted here, sourced from the Guotaian database, calculated as described.

$$KZ = [(EBIT + depreciation\ and\ amortization - interest\ expense) / market\ value\ of\ the\ enterprise] * 100\%$$

Control variables

When selecting control variables for the regression model, we refer to previous literature and include: Company size (Size), debt-to-asset ratio (Lev), growth ability (measured by total asset growth rate), total management compensation (SS), return on investment, and a year, Individual dummy variable to control for time effects. These variables help accurately reveal the relationship between equity pledges and firm performance, considering various influencing factors and isolating macroeconomic impacts.

Table 4-1 Variable definitions

Variable type	The name of the variable	symbol	Variable definitions
Explanatory variables	Return on total assets	ROA	Net Profit/Average Balance of Total Assets
Explanatory variables	Equity pledge	Pledge1 Pledge2	The number of shares pledged by the controlling shareholder/the total number of shares of the enterprise If the controlling shareholder has an equity pledge at the end of the year, a value of 1 is assigned, otherwise a value of 0 is assigned
Mediation variables	Financing constraints	KZ	KZ Index
Control variables	The size of the enterprise	Size	The natural logarithm of total assets at the end of the period
	Debt-to-asset ratio	Lev	Total Liabilities/Total Assets (Total assets at the end of the period - Total assets at the end of the previous period) / Total assets at the end of the previous period
	The company's ability to grow	Growth	The natural logarithm of total management compensation
	Total management compensation	SS	
	Return on Return	Return	Investment income for the period /

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investment		Total investment at the end of the period
year	Year	Dummy variables
Individual businesses	Individual	Dummy variables

Research the model

In order to test the key hypothesis in this study, i.e., whether the equity pledge of the controlling shareholder will have an impact on the company's performance, we construct the following multiple regression model:

$$ROA_{it} = c \times Pledge_{it} + \gamma_1 Size_{it} + \gamma_2 lev_{it} + \gamma_3 growth_{it} + \gamma_4 SS_{it} + \gamma_5 Return_{it} + YearFixedEffects + IndividualFixedEffects + \epsilon_{it}$$

(4-1)

$$KZ_{it} = \alpha \times Pledge_{it} + \beta_1 Size_{it} + \beta_2 lev_{it} + \beta_3 growth_{it} + \beta_4 SS_{it} + \beta_5 Return_{it} + YearFixedEffects + IndividualFixedEffects + \epsilon_{it}$$

(4-2)

$$ROA_{it} = c' \times Pledge_{it} + b \times KZ_{it} + \gamma'_1 Size_{it} + \gamma'_2 lev_{it} + \gamma'_3 growth_{it} + \gamma'_4 SS_{it} + \gamma'_5 Return_{it} + YearFixedEffects + IndividualFixedEffects + \epsilon_{it}$$

(4-3)

In the above model, Pledge is a representative of equity pledge, and Pledge1 and Pledge2 are used to quantify, and the specific quantification methods of other variables can be found in Table 4-1.

4. Methods for mediating effects

If the influence of variable X on Y is transmitted through variable M, then M is the mediating variable, and the relationship between X, M, and Y is shown in Figure 4-1. The basic principle is shown in Figure 4-1.

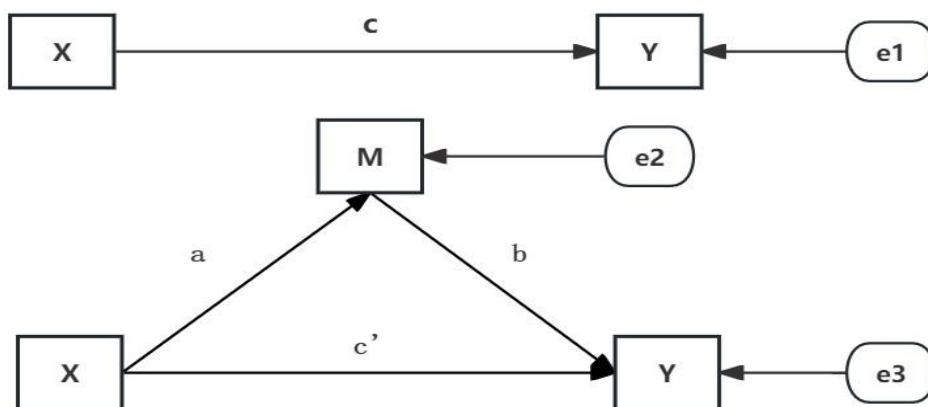


Figure 4-1 Schematic diagram of the mediation model

In recent years, scholars have been deepening their research on the validity of test methods and the appropriateness of test procedures, Jerry Hausman (2002), Preacher and Hayes (2004), and Zhao et al. (2010).and other scholars have questioned the effectiveness of the stepwise regression test, and recommended the use of the Bootstrap method to test the mediating effect, and the specific test steps are as follows:

$$Y=cX+e1 \quad (4-4)$$

$$M=aX+e2 \quad (4-5)$$

$$Y=c'X+bM+e3 \quad (4-6)$$

X and Y are regressed to obtain the coefficient c. If c is significant, then the next test is carried out according to the mediating effect, otherwise it is a masking effect, and the test is stopped.

X and M are regressed to obtain the coefficient a; X and M together perform a regression on Y to obtain the coefficient b. If both A and B are significant, the fourth step is proceeded, and vice versa, the third step is continued.

Use the Bootstrap method to verify a and b. If it is significant, it will move to the next step, otherwise the test will be stopped.

Test the coefficient c' obtained by regression of X and M together to Y. If c' is significant, the direct effect is significant, and the next step of analysis continues, otherwise the direct effect is not significant.

Compare the symbols of AB and C'. If the two have the same number, it is a partial mediation effect, and vice versa, it is a masking effect.

Empirical analysis

Descriptive statistics

Before starting the empirical study, this part first performs a descriptive statistical analysis of each variable, and then delves into the equity pledge status of the controlling shareholders in the selected sample.

Descriptive statistical analysis of the variables involved in the model was performed with the following results:

Table 5-1 Descriptive statistics of the main variables

Variable name	Sample size	mean	standard deviation	min	max	P25	median	P75
ROA	495	0.020	0.195	-1.190	0.930	0.000	0.035	0.070
Pledge1	495	12.890	15.167	0.000	66.900	0.020	7.199	22.780
Pledge2	495	0.380	0.486	0.000	1.000	0.000	0.000	1.000
KZ	495	0.480	2.318	-6.920	6.250	-0.920	0.580	2.090
Size	495	9.740	0.433	8.680	10.650	9.440	9.729	10.070

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Lev	495	0.380	0.200	0.060	1.590	0.240	0.347	0.460
Growth	495	0.010	0.193	-0.560	1.610	-0.080	0.024	0.100
SS	495	7.420	5.607	0.730	35.810	4.340	6.406	7.480
Return	495	0.200	1.461	-21.470	16.850	0.010	0.054	0.140

This study analyzed data from 99 listed companies in the culture and media sector from 2018 to 2022, exploring the relationship and characteristics of companies with equity pledge problems. The average return on assets (ROA) was 2%, with a significant variation (standard deviation of 0.195), indicating weak overall profitability. The average equity pledge ratio by controlling shareholders was 12.89%, reflecting its ubiquity and large scale, with significant differences among enterprises (standard deviation of 15.167). Financing Constraint (KZ) varied considerably, with an average of 0.48 and a standard deviation of 2.318. Control variables showed little variation in company size (standard deviation of 0.433) and enterprise growth (standard deviation of 0.193), while asset-liability ratios varied widely (from 0.06 to 1.59), averaging near 40%. Management compensation (SS) and investment returns also showed significant variations.

Correlation analysis

Stata 16.0 was used to analyze the correlation between variables to preliminarily test the above hypothesis, and the specific results are shown in Table 5-2.

Table 5-2 Pearson correlation test results

	ROA	Pledge1	Pledge2	KZ	Size	Lev	Growth	SS	Return
ROA	1								
Pledge1	-0.178***	1							
Pledge2	-0.101**	0.354***	1						
KZ	-0.237***	0.156***	0.123***	1					
Size	0.195***	-0.131***	-0.205***	-0.061	1				
Lev	-0.131***	0.126***	0.054	0.311***	-0.069	1			
Growth	0.418***	-0.153***	-0.104**	-0.223***	0.144***	-0.106**	1		
SS	0.144***	-0.004	0.017	0.002	0.345***	-0.006	0.071	1	
Return	0.255***	-0.063	0.019	-0.037	-0.003	0.044	0.137***	0.011	1

From the correlation analysis results provided in Table 5-2, we can draw the following conclusions: the correlation coefficient between ROA and Pledge1 is -0.178, and it is significant at the level of 1%; The correlation coefficient between ROA and Pledge2 was -0.101, which was significant at the 5% level. These two negative correlation coefficients imply that there is a significant negative relationship between the proportion of equity pledged (whether represented by

Pledge1 or Pledge2) and firm performance (ROA). In other words, as the proportion of equity pledges increases, the company's performance has a downward trend. This preliminarily supports the hypothesis H1 that equity pledge has a negative impact on firm performance. The correlation coefficient between Pledge1 and KZ is 0.156 and is at the level of 1%.

The correlation coefficient between Pledge2 and KZ is 0.123, which is also significant at the 1% level. These two positive correlation coefficients indicate that there is a significant positive relationship between the equity pledge ratio and the financing constraint index (KZ). As the proportion of equity pledges increases, the company may face higher financing constraints. This preliminarily supports the research hypothesis H2, i.e. The pledge behavior is positively correlated with the financing constraints faced by the company. Table 5-2 also shows the correlation between the control variables and the ROA, all of which have a significant correlation with the ROA, and the signs of the coefficients are within the expected reasonable range. This means that it makes sense to consider these control variables in the model, as they may have an important impact on ROA and help to more accurately estimate the direct impact of staking on ROA.

Regression analysis

Analysis of the regression results of equity pledge and firm performance

To test H1 on equity pledges' negative impact on firm performance, a regression analysis was conducted. Based on prior correlation analysis, negative regression coefficients for Pledge1 and Pledge2 were expected (Table 5-3).

Table 5-3 Regression results of equity pledge and firm performance

VARIABLES	ROA	
	(1)	(2)
Pledge1	-0.004*** (0.001)	
Pledge2		-0.078*** (0.021)
Size	0.074 (0.080)	0.029 (0.080)
Lev	-0.078 (0.084)	-0.080 (0.085)
Growth	0.363*** (0.051)	0.376*** (0.051)
SS	-0.000 (0.002)	0.000 (0.002)
Return	0.026*** (0.006)	0.027*** (0.006)
_cons	-0.634 (0.785)	-0.229 (0.782)

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Year	con	con
Individual	con	con
N	495	495
R2	0.225	0.216
adj. R2	0.008	-0.003
F	11.207	10.639

*p<0.05,**p<0.01,***p<0.001 The t-value is enclosed in parentheses

According to H1, major shareholders' equity pledges may harm firm performance by diverting resources. Regression analysis using Pledge1 and Pledge2 as independent variables, considering control variables, showed negative coefficients (-0.004 and -0.078) with high statistical significance (t-values: 0.001, 0.021). This confirms H1, indicating a significant negative correlation between major shareholders' equity pledges and company performance.

Regression analysis of equity pledge and financing constraints

In order to verify hypothesis H2, i.e., equity pledge behavior is positively correlated with the financing constraints faced by firms, this paper uses model (2) to perform regression analysis. Based on the foregoing analysis, we expect the regression coefficients for Pledge1 and Pledge2 to be positive, indicating that an increase in the proportion of equity pledges will lead to an increase in the financing constraints faced by the company. Table 5-4 shows the specific regression results:

Table 5-4 Regression results of equity pledge and financing constraints

VARIABLES	KZ	
	(1)	(2)
Pledge1	0.027** (0.009)	
Pledge2		0.669*** (0.197)
Size	0.194 (0.771)	0.481 (0.760)
Lev	1.364 (0.807)	1.342 (0.804)
Growth	-1.613** (0.490)	-1.705*** (0.489)
SS	-0.003 (0.023)	-0.002 (0.023)
Return	-0.088 (0.054)	-0.091 (0.054)
_cons	-2.664	-5.269
Year	con	con
Individual	con	con
R2	0.092	0.098
adj. R2	-0.162	-0.155
F	3.928	4.180

*p<0.05,**p<0.01,***p<0.001The t-value is enclosed in parentheses

Regression results in Table 5-4 show that Pledge1 (coef. 0.027, t-value 0.009, p<0.05) and Pledge2 (coef. 0.669, t-value 0.197, p<0.01) positively correlate with financing constraints. This supports H2, indicating that equity pledges increase financing constraints for listed companies. While equity pledges offer quick funding, they may exacerbate financing issues due to factors like stock price volatility and control risk. Thus, listed companies should weigh equity pledges against other financing options.

The mediating effect test of financing constraints

In order to verify hypothesis H3, that is, financing constraints play a mediating role in the relationship between equity pledge behavior and firm performance, this paper uses model (1), model (2) and model (3) to perform regression analysis with reference to the mediation effect test procedure. Table 5-5 shows the specific regression results:

VARIABLE	(1)	(2)	(3)	(4)	(5)	(6)
S	ROA	KZ	ROA	ROA	KZ	ROA
KZ			-0.016** (0.005)			-0.016** (0.005)
Pledge1	-0.004*** (0.001)	0.027** (0.009)	-0.004*** (0.001)			
Pledge2				-0.078*** (0.021)	0.669*** (0.197)	-0.067** (0.021)
Size	0.074 (0.080)	0.194 (0.771)	0.077 (0.080)	0.029 (0.080)	0.481 (0.760)	0.037 (0.079)
Lev	-0.078 (0.084)	1.364 (0.807)	-0.056 (0.083)	-0.080 (0.085)	1.342 (0.804)	-0.058 (0.084)
Growth	0.363*** (0.051)	-1.613** (0.490)	0.337*** (0.051)	0.376*** (0.051)	-1.705*** (0.489)	0.348*** (0.052)
SS	-0.000 (0.002)	-0.003 (0.023)	-0.000 (0.002)	0.000 (0.002)	-0.002 (0.023)	-0.000 (0.002)
Return	0.026*** (0.006)	-0.088 (0.054)	0.025*** (0.006)	0.027*** (0.006)	-0.091 (0.054)	0.025*** (0.006)
_cons	-0.634 (0.785)	-2.664 (7.532)	-0.677 (0.777)	-0.229 (0.782)	-5.269 (7.441)	-0.315 (0.774)
Year	con	con	con	con	con	con
Individual	con	con	con	con	con	con
N	495	495	495	495	495	495
R2	0.225	0.092	0.244	0.216	0.098	0.235
adj. R2	0.008	-0.162	0.030	-0.003	-0.155	0.019
F	11.207	3.928	11.280	10.639	4.180	10.758

Table 5-5 Tests of the mediating effect of financing constraints

*p<0.05, **p<0.01, ***p<0.001 The t-value is enclosed in parentheses

Regression results in Table 5-5 show that equity pledges by major shareholders (Pledge1 and Pledge2) significantly negatively correlate with firm performance (ROA) at the 1% level. This suggests increased financial risk, funding issues, or short-term decision-making. The coefficients related to financing constraints (KZ) in equations (4-5) and (4-4) are also significant, indicating that equity pledges increase financing constraints. The coefficient between financing constraints and ROA is significant, showing an indirect effect. The coefficient c' in equation (4-6) remains

significant, indicating a direct negative impact of equity pledges on firm performance. Since the signs of the indirect effect (ab) and direct effect (C') are the same, financing constraints mediate the relationship between equity pledges and firm performance, supporting H3.

According to the above model test results, the coefficients in the equation are sorted out and summarized, as shown in Table 5-6

Table 5-6 Summary of mediating effect test coefficients

coefficient	Pledge1	Pledge2
c	-0.004	-0.078
a	0.027	0.669
b	-0.016	-0.016
c'	-0.004	-0.067
ab	C'Ibid.	C'Ibid.
outcome	Mediation effect	Mediation effect

Conclusions and recommendations

Conclusions of the study

This paper selects A-share listed companies in the media industry from 2018 to 2022 as the research sample, and finds that there is a negative correlation between the equity pledge of major shareholders and corporate performance by introducing the key variable of financing constraints, and financing constraints play an important mediating role in them.

Research deficiencies and prospects

To a certain extent, the investment direction of the controlling shareholder's equity pledge funds reveals the intention of the shareholders' equity pledge, which has important academic value for the research on the investment direction of equity pledge funds. However, given the current situation, it is difficult to collect relevant data on the investment of equity pledged funds. Therefore, this article does not delve into this perspective. In addition, the relatively small number of listed cultural media companies in China and the lack of empirical data up to 2022 limit the empirical analysis of this study to some extent, and it is hoped that these issues can be further explored in future research.

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Study on the implementation effect of river and lake water environment management in Jingdezhen city

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Abstract

In recent years, ecological protection of river and lake environments has gained significant attention. The nationwide implementation of the river chief system in 2016 marked a pivotal shift toward addressing pollution and restoring aquatic ecosystems. By establishing a responsibility framework involving party and government leaders, the policy prioritizes water conservation, spatial balance, systematic management, and the sustainable use of water resources. Jingdezhen has aligned with national and provincial directives by implementing a four-tier river chief system at city, county, township, and village levels. This study evaluates the effectiveness of this policy in Jingdezhen using the meter-horn policy implementation model, examining factors such as policy standards, resources, enforcement, and personnel orientation. Based on questionnaire surveys and empirical analysis, the findings highlight challenges and provide recommendations for improving policy outcomes. These insights aim to support the sustainable development of Jingdezhen's economy while advancing ecological protection efforts.



Full Text Article



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Keywords: river chief system policy; policy implementation; Mitt-Horn model

Analysis of the policy implementation status and dilemma of Jingdezhen river chief system

Basic situation of the implementation of the Jingdezhen river chief system policy

Since 2016, Jingdezhen has adhered to the principles of ecological civilization, establishing the concept that "green water and lush mountains are invaluable assets." In alignment with the deployment requirements of strengthening the long river system and constructing "happy lakes," Jingdezhen has focused on the comprehensive development and utilization of water resources. The core objectives include the protection of the water ecological environment, the prevention of water pollution, and the continuous improvement of water ecological quality. Comprehensive management of the entire basin has been prioritized, with an emphasis on strengthening the management of pollution sources to meet the city's water ecological quality standards. In accordance with the work plan for the river chief system, we have actively developed and

implemented comprehensive policies aimed at enhancing the river and lake environments. Significant progress has been made in improving water ecology and environmental quality. Ultimately, the enhancement of river and lake water quality is the primary goal of implementing the river chief system policy. Creating an ecologically beautiful river and lake environment is not only central to the river chief system policy but also a necessary condition for achieving sustainable ecological development. For an extended period, the protection of the water ecological environment has been recognized as a long-term project. Achieving desired goals and effects through temporary or single-aspect protection is challenging; thus, a comprehensive, multi-faceted approach to governance is essential. The implementation of the river chief system policy aims to establish a robust ecological protection framework for rivers and lakes, characterized by orderly regulation, clear responsibilities, strong protective measures, and stringent supervision. This framework is intended to sustain the health of rivers and lakes while facilitating their sustainable utilization. Consequently, this paper analyzes and discusses relevant data concerning the standards and objectives of policy implementation, resource allocation, modes of implementation, characteristics of the implementation mechanism, and the value orientation of the executors. This analysis aims to provide an objective understanding of the current state of the river and lake water environment in Jingdezhen City.

Organizational mechanism and system construction situation

Jingdezhen has appointed a total of 617 river (lake) chiefs, which includes 19 municipal, 65 county, 120 township, and 413 village river (lake) chiefs, thereby achieving full coverage of the river chief system across city, county, township, and village levels. In the event of personnel changes, the line of river and lake chiefs is adjusted promptly to enhance the institutional framework. A cooperative mechanism has been established among river and lake chiefs, police chiefs, and chief procurators to fully utilize the legal supervision functions of the procuratorial organs, as well as the supervisory and rectification roles of public security departments. This comprehensive implementation of the long-term joint supervision mechanism, termed "river chief + police chief" and "river chief + chief procurator," is supported by the issuance of the Implementation Measures on Establishing the Cooperation Mechanism of "River and Lake Chief + Prosecutor General" to ensure the management and protection of rivers and lakes, along with the Implementation Opinions of the Police Chief System for Rivers and Lakes (Revised) and other related documents. These efforts provide a robust guarantee for advancing the city's river and lake chief system from "comprehensive establishment" to "comprehensive effect." In addition, adjacent cities situated between cross-border lakes should establish a long-term working mechanism that includes joint consultations, patrols, prevention and control measures, and collaborative management. This approach aims to address controversial issues through negotiation and to promote shared implementation, mutual coordination, and collective management responsibilities. The goal is to prevent the degradation of the river and lake environments and to facilitate the establishment of a sustainable governance zone. Furthermore, we will enhance the river chief system by ensuring comprehensive planning and coordination, breaking down major tasks, and implementing a responsibility system for water environment protection. This will involve a division of labor and cooperation among relevant departments according to their specific responsibilities, as well as the achievement of established targets.

River patrol supervision and rectification aspects

The city has issued a directive regarding the deepening of lakes and the enhancement of river systems to expedite the construction of sustainable waterways. It requires all levels of river (lake) management and relevant responsible units to adhere to established regulations and to prioritize special projects for rivers. Municipal grassroots river managers are expected to follow up promptly, respond effectively, and fulfill their roles and responsibilities in the supervision of waterways, while also coordinating efforts to address any issues that arise. Under the leadership of the municipal government, river and lake chiefs across four levels have conducted over 29,770 inspections. Specifically, municipal-level river and lake chiefs have completed 30 patrols, county-level chiefs have conducted more than 350 patrols, township-level chiefs have carried out over 4,850 patrols, and village-level chiefs have performed more than 24,540 patrols. It is essential to leverage the overall responsibility of river and lake chiefs to enhance oversight. In light of the challenges identified in the supervision process, including issues raised during public investigations and concerns expressed by the community, the city river chief office has issued supervisory letters and has received feedback for rectification. All identified issues have been addressed and implemented accordingly. We will implement the state's basic requirements for water pollution prevention and control, conduct regular special campaigns such as the 'Qinghe Action' and 'Cleaning of Rivers and Lakes', and enhance supervision and law enforcement through river and lake guards. Additionally, we will conduct a comprehensive investigation into the management issues affecting rivers and lakes. We aim to strengthen the centralized control of industrial pollution, ensure the stable operation of centralized sewage treatment facilities, and guarantee that effluent is discharged in accordance with established standards. In line with the province's ecological environment special law enforcement inspection plan, we will initiate targeted actions against scattered pollution. This will involve investigating the factories and mines surrounding scattered pollution enterprises, and requiring prompt rectification from any identified problematic units.

Policy resources input situation

We will vigorously implement comprehensive ecological improvements in river basins and strive to create "happy rivers and lakes" for the benefit of the people. By continuously developing the 100-li scenic belt of the Changjiang River, with a focus on "one river, three rivers, and six mountains," we will promote urban and rural environmental governance and landscape ecological restoration within a defined scope. Attention will be directed towards the construction of a key water conservancy project in Jingdezhen, as well as the initiation of the Jingdezhen River and Lake Chief System Theme Park, which will receive substantial funding. The main dam project in Jingdezhen was completed in May 2021, and the Jingdezhen River and Lake Chief System Theme Park has been launched, with an investment of 50 million yuan already secured. Additionally, the ferry wharf and leisure square at People's Park on the right bank of the Changjiang River have been completed and are now in use. The first phase of the Yanjiang West Road landscape greening and drainage project (spanning the Changjiang Bridge to the Lanshan Bridge section), which involved an investment of 168 million yuan, has also been fully completed, covering a total construction area of approximately 22.49 hectares. The comprehensive management project for the ecological environment of the Changjiang River Basin has consistently provided citizens with numerous comfortable leisure and fitness spaces. We will enhance ecological restoration efforts to control and

mitigate soil erosion, aiming to complete comprehensive prevention and control measures over an area of 52.23 square kilometers. This encompasses 36.63 square kilometers of soil erosion and 15.60 square kilometers designated for key prevention and protection. In conjunction with the comprehensive implementation of ecological river management and the oversight of river and lake environments, Jingdezhen City will build upon the existing results of river management. The ecological treatment of rivers will extend to other river basin water systems, while also supporting rural revitalization projects through engineering and landscape construction. A series of investments totaling 2 billion yuan will be directed towards the environmental governance of rivers and lakes. Additionally, a special fund of 2.7 million yuan will be allocated for the supervision of municipal rivers and lakes, addressing existing challenges in lake protection. Based on the comprehensive assessment of watershed distribution, four rivers and lakes have been selected for significant investment to develop 'happy rivers and lakes.' This initiative will greatly enhance the aesthetic appeal of these water bodies and provide substantial material support for improving their environmental quality.

Publicity and education approach and measures

Through engagement with mainstream media outlets such as Powerful Country, Jiangxi Daily, China Water Resources News, and Dajiang Network, I enhanced the publicity and reporting of the river and lake chief system. This effort resulted in the publication of 15 news reports in media outlets at the provincial level and above, alongside the analysis of four reports that reflect the practices and outcomes of implementing the river chief system policy. In conjunction with events such as World Water Day, China Water Week, and Lakes Protection Week, we issued 1,000 regulations pertaining to the long river and long lake system. These regulations facilitated water-saving education campaigns aimed at various community sectors, including enterprises, parks, schools, and rural areas, thereby increasing awareness of river and lake environmental protection and encouraging industry participation in lake conservation efforts. Additionally, the river and lake chief system was integrated into the curriculum of the Party School of the CPC Municipal Committee. The full-time deputy director of the Municipal River Chief Office was invited to deliver a special course titled 'The Practice and Experience of the River Chief System.' Through a series of educational initiatives themed 'River and Lake Protection Begins with Me' and 'Volunteer Service for Mother River: Garbage Cleanup,' we fostered a positive atmosphere for cherishing rivers and lakes and protecting ecological integrity on campus. The completion of the 1,500-meter South River leisure greenway and the installation of six publicity signs for the river chief system further support these efforts. In accordance with the Work Specification of the River Chief and Lake Chief Systems, we adjusted and updated the river chiefs' license display page with 109 entries. We also published a complaint report telephone number and QR code to facilitate public reporting of illegal activities, thereby enhancing social oversight.

All parties to cooperate with the special treatment situation

Special campaigns, such as the "River Clearing Action," have been conducted as part of the "Clean Up Action" initiative, addressing the "Four Chaos" issues affecting rivers and lakes, alongside the supervision and law enforcement efforts of river and lake guards. A comprehensive investigation into river and lake management issues has identified 102 environmental problems that adversely

impact water quality. Among these, 72 relate to urban and rural domestic sewage and waste; 13 pertain to disorderly conditions in rivers and lakes; 1 concerns water shorelines; 12 involve protected fishery resources; and 4 are associated with centralized drinking water sources. All counties, cities, districts, and municipal units responsible for the river chief and lake chief systems have actively collaborated to establish a detailed ledger of these issues, implement rectification measures, and manage sales numbers. By the end of December 2021, all rectification tasks were completed, achieving a 100% completion rate. The environmental quality of surface water in the city is stable and shows improvement. The proportion of water quality rated as excellent in both national assessment sections and provincial monitoring sections stands at 100%, placing the city first in the province. Furthermore, the water quality standard rate for centralized drinking water sources in the city is also 100%. In accordance with the new "Water and Soil Conservation Law," efforts have been made to actively implement the requirements set forth by superior competent departments. Comprehensive prevention and control measures against soil erosion have yielded significant results, successfully addressing soil erosion across an area of 52.23 square kilometers in the city.

The dilemma of Jingdezhen river chief system policy implementation

The organizational structure setup and incentive measures are unreasonable

First, the setting of the actuator is problematic. As an informal organization, the river chief office possesses certain advantages in integrating government resources; however, it also faces notable disadvantages. The composition of the department is broad, with the office staff primarily comprising leaders from party and government organs. Although a dedicated river chief office has been established, most personnel, especially those at the basic level, serve in part-time roles, lacking specialized professional expertise to effectively manage operations. Consequently, many tasks remain inadequately addressed, with the primary responsibilities falling to the water conservancy department. This situation exacerbates functional overlaps, leading to unclear divisions of responsibility between the river chief office and functional departments, which in turn causes frequent conflicts between departments. Second, the actuators are devoid of appropriate incentives. The river chief system necessitates the collaborative efforts of various executive agencies and departments, as river and lake governance is a long-term endeavor. Therefore, it is essential to develop a feasible set of incentive rewards and punitive measures to enhance staff motivation. Third, the complexities of team building present challenges. The majority of the river chief system's staff consists of heads from water conservancy departments and party and government organs, which does not align well with the professional demands of current river and lake environmental management. This misalignment hinders the ability of the river chief system to leverage complementary advantages effectively.

The standards for policy implementation are not clear and unified

The policy goal is to achieve the desired outcomes that public policymakers aim for when adopting specific methods and means. Determining the goal of a policy serves as both the starting point and the foundation for policy formulation. Policy implementation typically involves the adoption of corresponding measures aligned with the policy objectives, and the realization of these objectives plays a guiding role in the development of specific policy programs. The objectives and standards

of the river chief system policy dictate the particular methods and approaches for its implementation. Currently, the overall goal of the river chief system policy is relatively clear: to improve the river and lake environment of Jingdezhen. However, an examination of the execution process reveals that the long river system work in Jingdezhen has primarily been guided by central regulatory documents, with no specific regulations or appropriate adjustments made for the management of the rivers and lakes in Jingdezhen.

Insufficient investment in policy resources

First, the financial investment is insufficient. The river chief system policy was officially issued at the end of 2016. Due to the time difference in the budget implementation and compilation, when the government implemented the river chief system policy, the central and provincial governments often lacked sufficient budget funds as the guarantee, while the local finance became more tight due to the contradiction between revenue and expenditure. Due to the lack of special funds to ensure the management of river and lake environment, on the other hand, it is necessary to increase the publicity of river chief system and the investment of technical information measures, which makes it difficult for local governments to provide sufficient financial support for the river chief system policy. Second, the personnel structure needs to be optimized. In terms of human resources, although the "River Chief Office" and the leading group for river and lake water environment protection have been established in accordance with the policies of the central government, the centralized arrangement and deployment of human resources have been realized. However, the overall quality of the staff of Jingdezhen River Chief Office is not high, and there is a problem of shortage of high-level talents. The front-line staff are generally older, have poor educational background, and lack of professional professionals to control the pollution of river and lake water environment. Specialization and youth seriously restrict the implementation of the river chief system policy. Third, the lack of reliable information technology resources guarantee. Since the environmental protection of river and lake water needs real-time monitoring data, reliable information technology is needed as an important guarantee for data monitoring.

Lack of a good policy environment

The implementation of a policy cannot solely depend on the fundamental conditions of the policy itself; it is also inextricably linked to the support of a conducive external environment. This external environment primarily comprises the political, economic, and cultural contexts. This is primarily manifested in two ways: First, excessive political coercive pressure can be detrimental. For instance, in order to implement the river chief system policy, the Jingdezhen municipal government adhered strictly to superior directives and directly held accountable those river chiefs who failed to execute the policy effectively. While such strong political pressure may enhance the effectiveness of the river management efforts in the short term and improve administrative efficiency, it can also foster resistance among grassroots river chiefs. Many of these river chiefs serve as the principal leaders of party and government organs at the grassroots level and may struggle to cope with these pressures over the long term. Second, there is an inadequacy in the economic environment's guarantee function. The economic environment serves as a material guarantee for the implementation of the river chief system policy and is a primary premise for its execution. In the case of Jingdezhen, a prefecture-level city, the economic foundation is relatively weak compared to other regions. This

city faces constraints from traditional industries and lacks internal driving factors necessary for economic growth. Consequently, its economic development capacity is underdeveloped, placing it at a lower level of overall economic development on a national scale. Therefore, since the implementation of the river chief system policy, the enhancement of the river and lake environment has been constrained by the prevailing economic conditions. Furthermore, the cultural environment surrounding river and lake water protection is insufficiently developed. Over the course of long-term cultural construction, it is generally believed that the establishment of a culture of river water environment protection is primarily a matter of public infrastructure and the provision of hardware facilities for protecting the river and lake environment. However, there is a lack of clarity regarding the importance of spiritual cultural concepts, leading to modernization of material facilities without a corresponding development of cultural awareness. As a result, policy advocacy does not achieve the desired effect, and there is a notable deficiency in legal consciousness.

Weak communication and execution ability between organizations

First, there is poor internal communication among the organizations. According to the implementation measures of the long river system policy, a special river system office has been established to comprehensively promote the execution of the long river system policy. This office is responsible for enhancing communication among the departments directly involved in river management. These departments are tasked with clarifying their respective responsibilities through official documents issued by government entities. However, during the actual implementation of the long river system, the grassroots leadership plays a critical role in overseeing the entire operation. Due to discrepancies in departmental divisions and unclear responsibilities among the various management bodies, internal communication and coordination issues often arise. This can lead to conflicts and inefficiencies among departments, as the executors struggle to coordinate with one another, resulting in a lack of effective organization and management across the various entities. Secondly, the execution capabilities among the organizations are weak. Executives at the grassroots level, on one hand, adhere to the policies set forth by their superiors and complete the required upload tasks. On the other hand, many grassroots executives are primarily focused on their heavy workloads. Additionally, the limited funds allocated by superiors, combined with insufficient staffing and various organizational issues at the grassroots level, contribute to symbolic implementation problems. These factors result in significant deviations from the intended dynamic management targets, ultimately leading to poor execution of the long river system policies.

There are biases in executive cognition and execution

First, the cognitive biases of the policy executors must be considered. Regarding the river chief system policy, it is essential for executors to enhance their understanding of both the spirit and essence of the policy, as well as the internal regulations and external environment surrounding it, to achieve optimal policy outcomes. Since the implementation of the river chief system policy, the river chief office has focused significantly on external publicity, yet it has not devoted sufficient attention to internal training, which is crucial for fostering a deep understanding of the policy. Second, deviations in the execution of the policy by the executors have been observed. Due to insufficient cognitive engagement with the policy, some executors perceive the responsibility for the protection of river and lake environments as solely belonging to the water conservancy

department. Typically, the head of the party oversees the management of the long river, which can lead to deviations in execution. Furthermore, the capabilities of some executors may not meet professional requirements, resulting in a perfunctory approach to task completion, primarily aimed at appeasing superior inspections. This lack of sustained commitment undermines the long-term effectiveness of lake protection efforts. Additionally, the macro-level assessment indices can create a disconnect in the implementation of the long river system policy, as the process cannot effectively align with the assessment criteria. Consequently, executors may prioritize the completion of tasks over the quality of outcomes, and the absence of a differentiated appraisal system diminishes the value of the basic system for long river management.

Promote the optimization of river and lake water environment management in Jingdezhen city

Refine the implementation standards of river chief system and clarify policy objectives

A policy is often characterized by its fundamental direction and principles concerning policy objectives. It is generally more abstract and general in nature. To facilitate smoother policy execution, it is essential to refine the basic principles and directions under the guidance of both overarching and specific goals. This involves formulating a concrete implementation plan that delineates clear work tasks and objectives, addresses specific issues, and organizes execution activities in an orderly manner. Macro-level policies and vague target standards frequently hinder effective policy implementation. As the implementation of policies becomes more prolonged, the introduction of increasingly complex systems, such as the river chief system, often results in abstract and ambiguous policy standards and targets. The absence of specific, detailed policies and precise planning, coupled with a lack of a comprehensive timeline, contributes to unclear execution outcomes. Therefore, it is crucial to establish detailed implementation standards and accurate targets, as these are prerequisites for the effective execution of the river chief system policy, ensuring clarity and precision in its implementation.

The standards for policy implementation must align with the local development context and be formulated in conjunction with actual problems. This ensures that the policy standards of the river chief system neither lag behind nor advance disproportionately, but rather correspond to the realities of the Jingdezhen river chief system across various dimensions. The formulation of goals within the Jingdezhen river chief system policy should emphasize clear goal positioning, refine the interpretation of policy objectives, and minimize potential misinterpretations by the policy executors involved in the river chief system. The goals should be practically operable and capable of supporting long-term aspirations while remaining grounded in realistic objectives. Furthermore, to enhance the development of the river chief system policy, government departments should prioritize the dissemination of policy information, continuously improve the policy framework, and effectively engage in the interpretation and mobilization of the river chief system policy.

Expand the resources for the implementation of the river chief system policies

With precise and specific policy objectives and standards, the effectiveness of the river chief system's implementation may be compromised if the personnel and institutions responsible for executing the policy lack the necessary resources. Insufficient resources can hinder the achievement of the requirements and objectives outlined during the policy formulation phase, necessitating

substantial investments in capital, manpower, technology, information, and other essential resources. Firstly, capital serves as a critical resource for the successful implementation of the Jingdezhen river chief system policy. Without adequate financial support, the policy's implementation will lack a solid material foundation, resulting in insufficient motivation for execution. Consequently, government departments should enhance their investment in the river chief system policy, explore diverse funding channels, innovate the utilization of investment funds, and optimize the allocation of these resources. Furthermore, funding strategies should not solely depend on government financial subsidies; alternative funding sources should be pursued. For instance, enterprises could contribute through environmental protection taxes, or social personnel could be mobilized to establish a dedicated fund for the management of rivers and lakes under the river chief system.

Human resources are a crucial prerequisite and driving force for the implementation of the river chief system policy. The execution of this policy primarily falls within the purview of administrative departments, and the protection of river and lake environments constitutes a specialized field of work. It is essential to enhance investment in and training for professionals to ensure that river and lake governance achieves its intended objectives. Furthermore, there is a need to promote the establishment of a long-term coordination mechanism that integrates the 'river chief system' with the 'supervisory chief system.' This includes formulating specific measures for collaboration and cooperative implementation, as well as ensuring regular communication regarding the progress of river and lake regulation efforts to strengthen contact. Additionally, it is important to encourage the involvement of non-governmental organizations, individuals, and groups in this initiative, guiding non-governmental river chiefs to participate actively in the protection of rivers and lakes. Effective river and lake governance cannot be achieved through the efforts of a few individuals; it requires the collective engagement of the entire society to foster a shared awareness of river and lake protection. Township (street) units can collaborate to establish a 'He Xiaoqing' volunteer service team to achieve comprehensive coverage, recruit volunteers, and organize volunteer activities.

Third, the implementation process of the river chief system policy necessitates the use of technical software, equipment, and tools pertinent to the policy's execution. Numerous water quality monitoring stations have been established in the river basin of Jingdezhen City; however, historically, the monitoring technologies have varied, the standards have differed, and sharing of monitoring data has proven challenging. The development and enhancement of a unified information platform are essential for addressing information asymmetry and improving the information-sharing mechanism. Leveraging Internet information technology and big data, an integrated water information management and control system can be established. This system will encompass control, decision-making, and a foundational database for urban water environment information, in conjunction with the application of IoT technology. It will enable the monitoring of operational and maintenance data for water conservancy facilities, such as sluices and pumping stations. Furthermore, the decision system will provide a unified scheduling function for vehicles and personnel during flood seasons and emergencies, while the support system will gather and manage construction data related to municipal and water conservancy projects. Additionally, through the establishment of the river chief WeChat public account platform, the general public is encouraged to offer suggestions and engage in ecological protection at any time and from anywhere. Therefore, it is imperative to ensure that the technical and informational resources allocated for the

implementation of the river chief system policy are adequate, necessitating an increase in investment in technical capacity and high-tech resources.

Enhance the subjective initiative of the river chief system policy executors

To enhance the implementation of the river chief system, it is essential to optimize the organizational framework by scientifically and reasonably delineating departmental responsibilities, clarifying management levels, selecting an appropriate organizational structure, and fully leveraging the proactive roles of policy executors. First, it is crucial to provide regular professional training for relevant personnel, reinforcing their theoretical knowledge and improving the professional skills of long river policy executives. This training should cultivate a sense of responsibility, foster a positive working atmosphere, and promote the value identity and execution capabilities of these policy executives. Personnel must comprehend the long river system policy, engage with its spirit, and effectively communicate its principles. Furthermore, those involved in the river chief system's policy implementation should enhance their organizational coordination and communication skills, while also strengthening their sense of responsibility. To facilitate these objectives, a system of regular work meetings should be established. During these meetings, grassroots river chiefs can address work performance at various stages and discuss challenges encountered. This collaborative approach will empower grassroots river chiefs to exercise their initiative and effectively resolve issues through group discussion. Historically, the implementation of the river chief system policy has primarily relied on directives from higher-level government departments, which lower-level departments are expected to follow. However, grassroots river chiefs often face significant challenges in communicating problems encountered during actual implementation. Even when issues are reported, timely solutions are not always forthcoming. The introduction of a regular meeting system addresses the challenges faced by grassroots river chiefs in implementing the river chief system policy, while also enhancing the subjective initiative of the river chief system. Second, it is essential to improve the performance appraisal mechanism of the river chief system. Performance appraisal generally involves assessing the past and present work efficiency of organizational members, which allows for predictions regarding their future work performance. Implementing a performance appraisal system within the river chief policy can establish quality indicators for grassroots river work performance. This system can effectively utilize assessment results to serve both incentivizing and disciplinary functions — rewarding high-quality task completion while imposing certain penalties for subpar performance. Consequently, the performance appraisal system becomes a crucial tool for ensuring accountability within the river chief system. Third, by exploring the establishment of a working model that integrates 'river chief + police chief' and 'river chief + chief procurator,' we can enhance the legal supervision functions of procuratorial organs. This approach will maximize their subjective initiative and facilitate effective connections between law enforcement, evidence collection, public interest litigation, and environmental damage compensation.

We will diversify the implementation methods of the river chief system policies

The river chief system, as a public policy, not only establishes corresponding standards and requirements for the executive staff of government departments during implementation but also modifies the procedures and methods of execution. It aims to enhance the implementation methods

of the river chief system policy. In the actual execution of this policy, it is essential to select reasonable and effective implementation methods tailored to the specific circumstances.

First, by publicizing the policy of the river chief system, residents living along rivers and lakes can be elected as private river chiefs, with certain remuneration provided. This initiative not only increases the income of private river chiefs but also enhances the effectiveness of river and lake environmental protection, thereby yielding greater social benefits. Second, volunteer service teams named "River Xiaoqing" can be established in towns and streets to achieve 100% coverage. These teams will recruit volunteers, conduct volunteer activities, and promote the protection of rivers and lakes, fostering the growth of the river chief system's volunteer team and perpetuating the spirit of volunteerism. Third, the policy of the river chief system should be publicized, and its working mechanism and underlying concepts should be clarified. Additionally, employing highly skilled personnel with expertise in environmental protection to serve as civil river chiefs will provide essential professional knowledge and technical support for the implementation of the river chief system policy. Furthermore, local university faculty members should be encouraged to participate and develop specific plans for the policy's implementation, ultimately enhancing the quality of river and lake environmental protection. Fourth, a cross-regional joint meeting system should be established. Given the nature of cross-basin water pollution, government departments must actively explore a collaborative approach to address river basin water pollution. Currently, China's river basins face significant challenges regarding water quality.

The challenges associated with water environment disputes are primarily addressed through mutual consultations among local governments, coordination by higher government departments, or the traditional litigation methods aimed at resolving disputes related to rivers and lakes within a river basin. The absence of a specialized dispute resolution platform presents significant obstacles to the settlement of these disputes. Therefore, it is essential to establish a cross-regional joint meeting system to facilitate discussions regarding water environmental pollution responsibilities among river basins, thereby fostering a collaborative governance mechanism. Additionally, by enhancing the implementation modes and procedures of the river chief system, it is possible to further the objective of protecting river and lake environments while simultaneously reducing resource expenditure and effectively improving implementation outcomes.

We will improve the environmental system for the implementation of the river chief system and policies

Currently, the overall economic and political cultural environment exhibits a positive trend in development. However, there remains a deficiency in support for river and lake environmental protection. This highlights the importance of optimizing the implementation of the long river system policy. It is essential to enhance the overall environmental system for the implementation of this policy and to foster a favorable atmosphere for river and lake environmental protection. First, the successful implementation of the river chief system policy requires a favorable economic environment. In recent years, as Jingdezhen's economy has gradually improved, capital investment in the protection of river and lake environments has also increased. This constitutes a positive economic backdrop. Moving forward, it is essential to further enhance capital investment in the river chief system to establish better material conditions. Second, the implementation of the river chief system policy necessitates robust political support. Government backing is crucial for the river

chief system, and government departments should prioritize the protection of river and lake environments. This includes increasing awareness and promoting the implementation of environmental protection measures. With strong governmental support, the execution of the river chief system policy will be more effective.

Third, the implementation of the river chief system policy necessitates the establishment of a conducive cultural environment. It is essential to enhance the publicity surrounding the river chief system policy and to further standardize the establishment of public signage for river and lake chiefs along the banks. Engaging with community residents and addressing issues promptly is crucial. River and lake governance is not solely the responsibility of the government; it requires the active participation of the entire populace. By intensifying long-term outreach efforts through major news media and digital platforms, and integrating environmental protection themes at critical times, we can effectively promote water conservation. This includes utilizing television, online resources, public service advertisements, and brochures to launch a comprehensive lakes protection campaign, thereby raising public awareness of the importance of safeguarding our water environment. Additionally, investment in water conservancy infrastructure upstream and the creation of lakeside theme parks centered around the concepts of 'happiness of lakes' and 'ecological homes' can be beneficial. These parks should reflect the region's unique traditional cultural characteristics, incorporating elements of water culture, water ecology, and water landscapes. This initiative aims to cultivate a societal ethos that values and protects lakes, fostering a genuine 'outdoor classroom' educational environment. Consequently, a robust cultural environment is essential for the effective implementation of this policy, which ultimately serves to safeguard the river and lake water environment in Jingdezhen City.

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Research on Value Chain Cost Management under Digital Transformation of Midea Group

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Abstract

With the emergence and development of digital technologies such as the Internet, cloud computing, artificial intelligence, and big data, the digital economy has become an important tool for leading industrial transformation and economic growth, and digital transformation is gradually becoming a key entry point for enterprises to innovate and enhance competitiveness. In the "14th Five-Year Plan," China sets "accelerating digital development and building a Digital China" as a long-term goal, while also prioritizing the digital transformation of enterprises as one of its key tasks. To respond to the national call and the call of the times, various enterprises have accelerated their digital transformation efforts, treating it as a crucial strategic priority. Through digital transformation, enterprises can achieve real-time decision-making, precise forecasting, improve cost management effectiveness, reduce costs across all links in the value chain, and enhance overall corporate competitiveness. This article takes Midea Group, which has achieved certain success in digital transformation, as a case study to examine the impact of digital transformation on its value chain cost management, providing some reference for enterprises that are currently undergoing or will undergo digital transformation.



Full Text Article



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Keywords: digital transformation; value chain; cost management

Introduction

With the rapid development of digital technology, the wave of digitalization has swept through all industries, becoming a new engine driving industrial development. To seize the new opportunities brought by the digital wave, our country has continuously introduced new policies related to digital technology in recent years. The State Council emphasized in the Notice on Issuing the "14th Five-Year Plan for Digital Economy Development" that it is necessary to strengthen the construction of digital infrastructure, improve the governance system of the digital economy, and promote the coordinated advancement of digital industrialization and industrial digitalization, empowering traditional industries to transform and upgrade, cultivating new industries, new business forms, and new models, continuously strengthening, expanding, and optimizing China's digital economy, and promoting national economic growth. Digital transformation can bring new development opportunities to enterprises, and manufacturing enterprises can enhance their overall value chain

digital utilization through digital transformation, manage costs more precisely, deeply explore the value of various business links, and achieve the maximization of corporate value. This article takes — Midea Group, a benchmark company in the home appliance manufacturing industry, as the research object, placing digital transformation and value chain cost management theory under a unified research framework, studying the impact pathways and effects of digital transformation on value chain cost management.

Literature review

Digital transformation

In recent years, with the widespread application of digital technology and the vigorous development of the digital economy, various industries have begun to undergo digital transformation in order to seek new developments. Since digital transformation is a relatively new wave in recent years, there is no consensus among academia on the concept of digital transformation. Fitzgerald, M., and Kruschwitz, N., and Bonnet, D., and Welch, M. (2014) believes that digital transformation drives business change by leveraging digital technologies such as social media, mobile, analytics, and embedded devices to enhance customer satisfaction, optimize corporate operational processes, and create new business models. Vial, G. (2021) defines digital transformation as: Digital transformation is the strategic effect of using digital technology to drive organizational change and thereby achieve value creation. Verhoef, P. C., and Broekhuizen, T., and Bart, Y., and Bhattacharya, A., and Dong, J. Q., and Fabian, N., and Haenlein, M. (2021) argue that the digital transformation of enterprises can be achieved in three stages: the first stage is information digitalization, the second stage is business process digitalization, and the third stage is comprehensive digitalization.

When discussing the paths of corporate digital transformation, many scholars have put forward their views and suggestions. These suggestions are mainly divided into macro and micro levels. At the micro level, scholars tend to emphasize the application of digital technology in enterprises under digital transformation. Leipzig, T., and Gamp, M., and Manz, D., and Schöttle, K., and Ohlhausen, P., and Oosthuizen, G., and von Leipzig, K. (2017) believes that when enterprises undergo digital transformation, utilizing digital technology can help analyze and predict customer needs, thereby meeting customers personalized and customized demands. Margiono, A. (2021) proposes that enterprises can achieve digital transformation through two approaches: one is enhancing digital capabilities by acquiring digitalized companies, and the other is improving digital R&D capabilities. Fathi, M., and Ghobakhloo, M. (2020), based on the fact that manufacturers primarily maintain competitiveness through product differentiation strategies, argues that the digital transformation of manufacturing enterprises is achieved by reshaping the business model.

Regarding the impact of digital transformation on business development, most people believe that digital transformation promotes business growth. For cost management, Westerman, G., and Calmégane, C., and Bonnet, D., and Ferraris, P., and McAfee, A. (2011) found through research that digital transformation integrates digital technology into all aspects of a company, saving costs in both R&D and production stages. Loebbecke, C., and Picot, A. (2015) discovered through their study that digital transformation optimizes operational models and enhances operational efficiency.

Value chain cost management related research

Value Chain Cost Management Theory integrates Value Chain theory and Cost Management theory within the same research framework combining both approaches. In 1987, foreign scholars Johnson and Kaplan first proposed the concept of Value Chain Cost Management arguing that in cost management it is essential to comprehensively analyze and apply multiple factors such as strategy resources cooperation etc. to ensure that a company gains a greater competitive advantage.

Most scholars have found through research that compared to traditional cost management models, value chain-based cost management can effectively control costs at every stage and offers better cost management outcomes for enterprises. Foreign scholars Hergert, M., and Morris, D. (1989) argue that value chain cost management not only considers the costs generated by internal value activities within the company but also fully takes into account factors affecting corporate costs on external chains, thus offering more advantages in cost control for enterprises compared to traditional cost management methods. Dekker, H. (2009) believes that value chain cost management focuses not only on production costs but extends its perspective to the entire value chain, including procurement, R&D, production, sales, and after-sales service. Qingge, Z. (2012) Qingge (2012) points out that the value chain cost management model differs from traditional cost management models, encompassing a broader and more comprehensive scope, which helps companies obtain more accurate and comprehensive cost information during accounting calculations.

Value Chain Cost Management Method, as an advanced cost management approach, has received widespread attention from scholars. Elsayed, M., and Wickramainghe, A., and Razik, M. A. (2011) believes that under the framework of strategic cost management, integrating corporate risk management into value chain management can enable companies to effectively prevent risks and reduce costs. Prieto-Carolino, A., and Sison, I. M., and Sumagaysay, M. B., and Gelvezon, R. P. L., and Monteclaro, H. M., and Asong, R. H. (2021) argues that in applying the Value Chain Cost Management Method, companies need to conduct in-depth analysis of each link in the value chain to identify existing issues and optimize them, which helps companies continuously discover potential cost reduction opportunities and innovation points. This continuous innovative spirit is conducive to maintaining a leading position in intense market competition.

Analysis and discussion

Company profile

Midea Group was founded in 1968 and began producing electric fans in 1980, entering the home appliance industry. In 1981, it officially registered and began using the Midea Group trademark. In 1993, Midea Group established itself internally and underwent shareholding system reform, setting up a motor company and a rice cooker company, which were listed on the Shenzhen Stock Exchange. In 2013, Midea Group achieved its overall listing on the Shenzhen Stock Exchange.

Since its establishment, Midea Group has actively expanded the market and always adhered to the corporate vision of "Striving for Excellence in Technology, Perfecting Life," focusing on research and development, and taking "Connecting People and Everything, Inspiring a Beautiful World" as its mission. Leading industry standards, it has developed well and provides satisfactory products and services to over 300 million users globally and key customers and strategic partners across various fields every year. Today, Midea Group comprises three listed companies, with sixteen manufacturing bases domestically and internationally, over sixty overseas branches in China,

and its products are exported to more than two hundred countries and regions. It possesses the most comprehensive production lines for central air conditioners, refrigerators, washing machines, and microwaves in China, as well as the most complete small appliance industry cluster and kitchen appliance product group. In recent years, through strategic planning of its business structure, Midea Group has updated its original four major sectors to five business sectors, establishing four main strategic axes: technology leadership, user reach, digital intelligence drive, and global breakthrough, successfully achieving digital transformation and business model innovation.

Drivers of digital transformation

1. Enhance product competitiveness and break through the bottleneck of enterprise development

The national subsidy policies for home appliances are gradually decreasing, and the growth momentum of the real estate market is also gradually slowing down, leading to a gradual decline in the sales growth trend of home appliance products. At the same time, consumer demand in the home appliance industry has undergone significant changes, with consumers increasingly pursuing product quality. However, at that time, the home appliance industry suffered from severe product homogenization and intense competition, forcing merchants to stabilize their market share through price wars. Many companies, including Midea Group, realized that to enhance the competitiveness of their products, they could not rely solely on price differentiation but must increase innovation efforts and improve product quality, achieving differentiation in product quality to form a core competitive advantage. Therefore, more and more companies are exploring digital transformation to seek new opportunities for development. Midea Group leverages digital transformation to improve product performance, enhance product quality, and orient towards consumer needs, innovating a variety of intelligent products that meet consumer demands, thereby enhancing product competitiveness.

2. Reduce product cost and improve operation efficiency

With the rapid development of the times, the traditional production and sales model of home appliance enterprises is facing unprecedented challenges. These challenges mainly stem from changes in the market environment and consumer demand, among other factors, the shortcomings of the traditional production and sales model are gradually becoming apparent, hindering the further development of enterprises. On one hand, the traditional production and sales model tends to accumulate inventory, leading to higher raw material and storage costs for enterprises; on the other hand, product development may not necessarily align with market demand, easily causing waste in the R&D process, which is detrimental to cost management.

Midea Group has always attached great importance to corporate cost management, but before 2012, Midea Groups costs remained high, encountering a bottleneck in cost management as shown in Table 3-1. From 2007 to 2011, Midea Groups total operating cost ratio remained consistently above 95%, with the sales expense ratio fluctuating less than 1% from 9.81% in 2007 to 9.23% in 2011. The administrative expense ratio not only failed to decrease but instead increased annually, indicating limited cost control capabilities within the company. Issues need to be addressed from both the production end and internal management conditions. Midea Group needs to optimize its cost management through relevant measures. Through digital transformation, Midea Group has improved every link in the value chain, enhancing cost control capabilities across all links, reducing product costs, and improving operational efficiency.

3. Adapt to the trend of digital era and enhance market competitiveness

In recent years, with the continuous development of the digital economy, there has been increasing policy support for its growth, and the role of the digital economy is continuously penetrating various industries. Against this backdrop, the digital economy in the industry has developed rapidly, bringing about new changes to traditional industrial models, including production methods, commodity circulation systems, and consumer purchasing behaviors with the advent of the digital age. For Midea Group, to maintain competitiveness in a complex market environment, it must seize the opportunities brought by the digital economy, making digital transformation an urgent necessity. Through digital transformation, Midea Group has changed its original business model, reshaped the corporate value chain, optimized internal management processes, and enhanced its ability to control consumer market demand, not only improving overall corporate efficiency but also boosting Midea Groups market competitiveness, ensuring its significant position in the highly competitive market.

4. Meet consumer needs and provide accurate services

With the continuous development of the times, consumer demand has also changed. The improvement in material and cultural standards has led peoples requirements for life to enter a higher level. For consumer products, consumer needs are no longer solely focused on the price and function of goods but increasingly consider performance, quality, comfort, etc. For home appliance companies, young consumers are gradually becoming the main consumer group for home appliances. On one hand, young consumers tend to use intelligent home appliances to improve the convenience of appliance usage; on the other hand, they hope that detailed product categories can provide them with more precise services. Based on this premise, personalization and customization have become one of the new important development directions for the home appliance industry. Through digital technology, Midea Group can promptly obtain consumer needs from the end of the value chain and then convert these complex and diverse information into data transmitted internally within the company. By analyzing this data, the company can quickly understand changes in market demand, develop and produce according to consumer needs, and then bring products to market, effectively meeting consumers personalized and customized consumption needs and providing precise services to consumers.

The digital transformation process

1. Digital Transformation 1.0: Information Integration

Midea Group faced significant external and internal pressures in 2012. Externally, intensified market competition and rising consumer demand forced the home appliance industry to consider the path of transformation and upgrading. Internally, Midea Group had numerous and relatively independent departments, leading to issues such as data incompatibility and non-unified corporate processes, which severely constrained the companys development. Against this backdrop of internal and external challenges, Midea Group decisively decided to integrate the information systems of all business units, breaking down the isolated and fragmented situation between departments. To achieve this, Midea Group set the transformation goal of "one system, one standard" and referred to this initiative as the "632 Project." The "632 Project" is a crucial milestone in Midea Groups digital transformation, establishing six unified operational systems, three management platforms, and two technical platforms. Through these efforts, Midea Group maintained high consistency across

departments in terms of processes, data, and systems, effectively enhancing internal information flow efficiency and strengthening unified corporate management

2. Digital transformation 2.0: intelligent manufacturing

After achieving basic process interconnection and system interoperability in Midea Group, the digital transformation of Midea Group has shifted from rectifying internal management to promoting the digital operation of the entire value chain. During this stage, Midea Group mainly advanced two core tasks:

(1) Proposing the "Dual Intelligence" strategy, which refers to smart home and intelligent manufacturing. In terms of smart home, Midea Group actively applies advanced artificial intelligence technologies such as image recognition, voice recognition, and facial recognition, deeply integrating them with mobile internet technology to enable home appliances to connect with mobile devices, achieving a higher level of intelligence. In terms of intelligent manufacturing, Midea Group has established an intelligent manufacturing plant, comprehensively upgrading production equipment in aspects such as automation, standardization, and digitalization. At the same time, it has built a big data platform that aggregates data from various stages including R&D, production, sales, and procurement, achieving full-chain data connectivity. By making all systems mobile, employees, partners, and others can access the system conveniently through apps and other convenient methods at any time.

(2) Second is to establish a C2M model, reconstruct the manufacturing process and supply chain, achieving flexible manufacturing. On one hand, leveraging a big data platform to analyze customer needs and then transmit these needs to the R&D and production departments, enabling the R&D department to conduct product development and production, building a flexible customization platform, while Midea Group utilizes digital marketing and other means to achieve a "production based on sales" flexible production and sales model; on the other hand, utilizing digital warehousing and other management platforms to monitor and analyze data in real-time, promptly identifying and addressing potential issues, achieving a data-driven management model. At this stage, the classic "T+3" production model proposed by Midea Group is a concrete manifestation of its flexible manufacturing capability.

3. Digital Transformation 3.0: integration of hardware and software

In the Digitalization 3.0 phase, the main measures taken by Midea Group are to introduce industrial internet, achieving interconnectivity of industrial production equipment through the IoT of devices, extending and covering digitalization from software to hardware, connecting the business value chain from the consumer end to the production end. In 2018, Midea Groups Nansha Smart Factory took the lead in initiating industrial internet construction, connecting 189 devices of 41 types through intelligent gateway technology. This initiative not only completed the digital transformation of major production equipment and elements but also achieved the interconnection of everything in the production system, thereby building the hardware system of the factory's industrial internet.

4. Digital Transformation 4.0: Comprehensive digital intelligence

To fully address the challenges of the digital economy era, from the end of 2020 to the present, Midea Group has undergone a strategic transformation and upgrade, upgrading its original three strategic main axes to four strategic main axes. In terms of business segments, Midea Group has demonstrated foresight and innovation, adjusting the four business segments to five business

segments. This strategic upgrade is the second major transformation and upgrade of Midea Group, and at the same time, Midea Group has clearly proposed the new strategic development goal of "comprehensive digitalization and comprehensive intelligence," which will inevitably transform the company into a technology-driven enterprise based on data.

The impact path of Midea Groups digitalization on value chain cost management

1. The impact path of digital transformation on internal value chain cost management

(1) Research and development phase

As a benchmark company in the home appliance manufacturing industry, Midea Group has always adhered to a customer-centric approach, prioritizing the fulfillment of personalized customer needs as its core development strategy. To this end, Midea Group continuously implements various measures to enhance user participation in product design and R&D processes. Since 2012, Midea Group has initiated the development of a big data platform called — Kepler System, which comprises five components: the Observatory, Crystal Ball, Seismograph, Gyroscope, and Service Platform. Among these, the Observatory is a system designed to help Midea Group grasp comprehensive market information. By extracting and analyzing user review data, it aims to understand customer needs, identify market patterns, and provide feedback to the R&D department. Based on this feedback, the R&D department can improve products or develop new ones, effectively enhancing customer satisfaction with the products.

In the R&D phase, Midea Group utilizes digital technology to establish a big data platform, enhancing the company's capability in acquiring and analyzing customer data, transmitting the analyzed data to the R&D department to help it quickly understand market demands and develop products that meet market needs and consumer satisfaction, thereby maximizing the improvement of R&D efficiency and enhancing the company's core competitiveness.

(2) Procurement link

To control procurement costs and improve procurement efficiency, Midea Group has undergone digital transformation in the procurement process and established a digital ERP procurement platform. This platform provides enterprises with comprehensive digital supply chain management and automated procurement process tools, enabling centralized and standardized procurement. By leveraging internet technology and intelligent algorithms, Midea Group can gain a detailed understanding of every aspect of the procurement process on its digital procurement platform, allowing for real-time monitoring. As a result, companies can better grasp procurement information, promptly adjust procurement strategies, thereby reducing procurement risks and lowering procurement costs. The digital procurement platform manages the entire procurement process from bidding to calculation, achieving paperless, fast, transparent, and intelligent operations at each stage. During the procurement process, procurement personnel need only fill out a detailed procurement request, which is automatically pushed to suppliers with relevant procurement materials and supply capabilities. Procurement personnel can also select suitable suppliers based on historical procurement records and cost-effectiveness, effectively facilitating rapid matching between enterprises and suppliers, improving raw material procurement efficiency, and significantly reducing labor costs and communication costs with suppliers.

(3) Production link

In 2015, Midea Group began to implement its smart manufacturing strategy. In the early stage of the strategy, Midea Group chose to purchase intelligent robots for use in production processes. As Midea Groups digital transformation progressed, it acquired a robotics manufacturing company and embarked on its own journey of robot research and development. Following this, Midea Group introduced the developed robots into factories, establishing intelligent digital factories. In these intelligent digital factories, robotic arms replaced human labor on production lines, achieving full automation from product assembly in the production stage to quality inspection in the testing stage, and then to automatic bagging, boxing, and sealing in the packaging stage. This not only effectively increased production capacity but also reduced labor costs and manufacturing expenses.

(4) Logistics link

In 2015, Midea Group began to implement the "One Warehouse" strategy. Before the implementation of the "One Warehouse" strategy, Midea Groups product distributors and operators had to find their own warehouses to store products and also had to seek logistics companies for logistics distribution. This model resulted in higher costs for logistics units. The so-called "One Warehouse" strategy refers to consolidating all inventory and logistics needs into one warehouse, implementing unified visibility, control, and allocation, and managing decentralized and extensive logistics through centralized management. Under this model, products can be directly delivered from the warehouse to stores or directly to consumers, reducing channel levels, avoiding long-term accumulation of funds and products, significantly decreasing the number of warehouses owned by Midea Group, and effectively lowering the companys logistics costs.

2. The impact path of digital transformation on external value chain cost management

(1) Supplier procurement process

To simplify the procurement process, Midea Group has established a comprehensive evaluation model for supplier performance, classifying and ranking suppliers for standardized application, ensuring the fairness and efficiency of the selection process. This method improves communication efficiency with suppliers and effectively reduces transaction costs. During the procurement process, through the full lifecycle management of this system, companies can gain a detailed understanding of suppliers entire lifecycle situations, combining current production needs and inventory conditions to formulate more precise procurement plans, thereby shortening the procurement cycle and saving procurement costs. After procurement is completed, both parties can view order information in real-time, ensuring transparency and traceability of transactions. Additionally, this system optimizes the delivery process, enhancing the companys management efficiency over suppliers, enabling the management team to achieve precise control over suppliers, effectively reducing information asymmetry risks during transactions, narrowing the distance between supply and demand, significantly reducing transaction times and costs for both parties, and improving procurement efficiency.

(2) Customer management link

To better understand customer needs and preferences and provide personalized services and products, Midea Group has established an intelligent CRM system and a dedicated customer relationship management team responsible for maintaining and serving customers. The customer relationship management team consists of professional technical personnel, customer service staff,

and after-sales service personnel who handle customer issues and needs, providing satisfactory solutions to enhance customer satisfaction. The CRM system can create a customer database for collecting, organizing, updating, and storing customer information, achieving comprehensive management and utilization of customer data. It also sets up customer categories and labels to analyze and categorize customers. By classifying and locking target customers, it helps understand customer characteristics and needs, thereby formulating more precise sales and service strategies, simplifying communication processes with customers, reducing communication barriers, lowering communication costs, shortening customer payment cycles, and accelerating the flow of funds and inventory.

Analysis of the effectiveness of value chain cost management in digital transformation

1. Analysis of the effect of digital transformation on the cost management of internal value chain

(1) Research and development phase

Since the digital transformation, Midea Group has always attached great importance to the companys investment in the R&D phase. Midea Group has consistently upheld the core strategy of "technology leadership" and is committed to mastering core technologies. During the digital transformation process, Midea Group continuously increased its investment in the R&D phase, with R&D investment showing an upward trend from 2012 to 2022. In the year when it first embarked on digital transformation, Midea Groups R&D investment was only 1.7 billion yuan; by 2022, Midea Groups R&D investment was approximately 7.5 times that of 2012, reaching 12.6 billion yuan, and in 2023 it grew to around 14.6 billion yuan. In 2012, R&D investment accounted for only 1.77% of the annual operating cost, but as the companys digital transformation began, the company placed increasing emphasis on the R&D phase, leading to a continuous increase in investment. By 2016, the companys R&D investment had already exceeded 4% of operating costs. As the digital transformation progressed, the companys financial investment in the R&D phase gradually slowed down, with the ratio of R&D investment to operating costs remaining below 4% between 2017 and 2021, before rebounding to above 4% in 2022 and 2023. Since the start of its digital transformation, Midea Group has continuously increased its investment in R&D expenses, demonstrating the companys strong emphasis on the R&D phase.

(2) Procurement link

At the beginning of its digital transformation, Midea Group established a digital procurement platform to help the company implement centralized and standardized procurement. Meanwhile, the new production model strengthened cooperation between the company and suppliers, effectively reducing procurement costs. From 2012 to 2023, Midea Groups raw material costs showed an overall upward trend, with slight decreases in 2015 and 2023, but a significant increase compared to 2012. The increase in procurement costs was mainly due to increased production volumes and rising prices of copper, steel, aluminum, and other raw materials in the market. From 2012 to 2023, the ratio of raw materials to operating costs for Midea Group generally decreased, dropping from 87.96% in 2012 to 83.39% in 2023. This indicates that building a digital procurement platform has a positive impact on cost management in the procurement process, and centralized and standardized procurement have effectively reduced the companys procurement costs.

(3) Production link

Although the number of production personnel in Midea Group has maintained an overall growth trend, the proportion of production personnel in the total workforce has been declining year by year. Meanwhile, the companys revenue has achieved a 130% increase, indicating that intelligent manufacturing has played a significant role in improving production efficiency. AI quality inspection technology has enabled intelligent robot technology to replace traditional manual quality inspection, not only effectively enhancing the efficiency of the companys production quality inspection process but also reducing the unit production cost of products. Midea Groups unit product production cost was 364.41 yuan per unit in 2012, which decreased to 299.7 yuan per unit in 2016, reaching its lowest point. From 2017 to 2018, due to the impact of rising raw material prices, there was a slight increase in unit product production costs, and from 2021 to 2022, there was also a slight increase, but compared to 2012, it has significantly decreased. Overall, Midea Groups unit product costs have noticeably decreased, demonstrating that the companys digital transformation has indeed achieved the goal of reducing costs in the production process.

(4) Logistics link

From 2012 to 2023, the inventory amount of Midea Group increased year by year, mainly due to the continuous expansion of the companys scale, with more and more factories being established, leading to an increase in inventory levels. Along with the rise in inventory amounts, Midea Groups inventory turnover ratio also increased continuously, showing an overall upward trend from 2012 to 2017, reaching its peak in 2017, and experiencing slight declines in 2018 and 2022, but still showing a significant increase compared to 2012, indicating that Midea Group performed well in inventory forecasting management, with the speed of inventory conversion continuously accelerating. The digital transformation has had a noticeable effect on cost management in the logistics process, reducing costs associated with logistics.

2. Analysis of the effect of digital transformation on external value chain cost management

(1) Supplier cooperation link

Midea Group has achieved scientific and effective procurement management through a digital procurement platform. Since Midea Group embarked on its digital transformation in 2012, the amount spent on the top five suppliers continuously decreased from 2012 to 2016. From 2017 to 2023, while there were fluctuations in the top five suppliers procurement amounts, the proportion of these top five suppliers in the annual procurement value generally showed a downward trend, decreasing from 13.46% in 2012 to just 6.19% in 2023. This indicates that the digital transformation has provided the company with more choices for suppliers, enabling cooperation with multiple suppliers and gradually reducing reliance on a single supplier.

The accounts payable turnover ratio can reflect the situation of a companys use of suppliers funds. During 2012-2022, Midea Groups accounts payable turnover ratio continuously declined, dropping to 3.99 in 2023, indicating that the companys bargaining power and credit management capabilities have been continuously improving. The digital transformation of the company has reduced the issue of information asymmetry between the company and suppliers, lowered communication costs between both parties, and optimized cost management in the supplier segment.

(2) Customer management link

Midea Group serves and maintains customers by establishing an intelligent CRM system and a dedicated customer relationship management team. During the process of customers purchasing

products, through the collaborative effect of digital technology, the company can meet various customer needs, significantly shortening the delivery cycle. From 2012 to 2023, although there were some fluctuations in Midea Groups accounts receivable turnover days, it generally showed a downward trend. The accounts receivable turnover days in 2012 was 34.68, which decreased to 29.57 by 2023. This change indicates that Midea Group has implemented relatively strict policies in customer relationship management, achieving certain results, and further confirms the reduction in customer delivery cycles and the acceleration of capital turnover.

From 2012 to 2023, the total purchase amount from Midea Groups top five customers continued to rise, with the sales revenue from these top five customers accounting for 12.07% of the annual sales total in 2012, decreasing to 7.05% by 2014, and then rising again to 13.89% in 2020, showing a fluctuating trend. This indicates that in the early stages of digital transformation, companies lacked sufficient control over key accounts, but as digital transformation progressed, their ability to maintain relationships with key accounts gradually improved. During the process of digital transformation, Midea Group fully integrated and utilized various system platforms, significantly enhancing customer relationship management and reducing transaction costs such as communication and coordination with customers.

Conclusion

The digital transformation of Midea Group has reshaped the companys value chain and optimized all links in the corporate value chain. In terms of internal processes, Midea Group leverages digital platforms and software-hardware technologies to digitally upgrade core links such as R&D, production, sales, and logistics within the internal value chain, thereby improving operational efficiency. In the R&D phase, the company utilizes a digital R&D platform to break through time and space constraints, enabling creative interaction and significantly shortening the R&D cycle while reducing R&D costs. In the production phase, digital equipment is used for intelligent scheduling and flexible production, allowing smart machines to replace some human labor, not only reducing labor costs but also enhancing production efficiency. The optimization of internal links in Midea Groups value chain has strengthened collaboration among various departments within the company, effectively addressing the time lags present in traditional manufacturing across different links in the value chain, achieving cost reduction and efficiency improvement.

In terms of the external value chain of enterprises, digital transformation has strengthened the connection between enterprises and their upstream and downstream partners, changing the one-way relationship between traditional suppliers and customers. Enterprises have established an order-centric procurement model through digital technology, forming a community of interests among suppliers, core enterprises, and customers, thereby reducing transaction costs.

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Social Gender Performance in the Algorithmic Age: The Discipline of Emotional Labor and the Negotiation of Digital Identities in Chinese "She Variety" on TV

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Abstract

Drawing upon social gender performance theory, this paper investigates the discipline of emotional labor and the negotiation of digital identities in Chinese "She Variety" on TV within the context of the algorithmic age. "She Variety," as an emerging genre of television programming, not only showcases the diverse roles and subjective consciousness of women in contemporary society but also reflects the multiple influences of algorithmic logic, commercial interests, and traditional gender norms on the construction of female images. Through textual analysis of several representative "She Variety" programs (such as Sisters Who Make Waves) and examination of online comments, this study finds that female participants engage in complex emotional labor, demonstrating both conformity to traditional gender roles and challenges to patriarchal norms. Simultaneously, they actively negotiate their identities in the digital media environment, striving to construct autonomous and diverse digital selves. The paper argues that in the algorithmic age, Chinese "She Variety" has become a significant arena for the negotiation of gender relations. It plays an important role in feminist media communication, contributes to the reshaping of gender culture in the new media era, and offers a new perspective for understanding the transformation of gender dynamics in contemporary China.



Full Text Article



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Keywords: Algorithmic Age; Social Gender Performance; She Variety; Emotional Labor; Digital Identities

Introduction

The proliferation of digital technologies and the rise of the algorithmic age have profoundly reshaped media production, distribution, and consumption (Couldry & Hepp, 2017; Seaver, 2017). Within this context, a new genre of television programming, known as "She Variety" (*Ta Zongyi*) on TV, has emerged in China, attracting significant attention and sparking widespread discussion.

Characterized by their focus on women's lives, experiences, and perspectives, "She Variety" programs often feature all-female or predominantly female casts and explore diverse topics relevant to contemporary Chinese women, including career, relationships, family, and personal growth. This genre not only reflects the growing economic and social power of women in China, as highlighted in recent studies on women's consumption and empowerment (Wang et al., 2024), but also resonates with the broader cultural phenomenon of the "She Era" (Ta Shidai), signifying a shift towards greater female visibility and empowerment in various spheres of Chinese society, including the rise of "she power" in entrepreneurship (Evans, 2008; Zhang & Jurik, 2021).

Against this backdrop, this paper investigates how social gender performance is manifested in the algorithmic age, with a specific focus on the discipline of emotional labor and the negotiation of digital identities within the context of Chinese "She Variety" on TV. Drawing upon social gender performance theory, particularly Judith Butler's (1990, 1993) conceptualization of gender as performative, this study examines how femininity and womanhood are constructed, represented, and contested on screen and in the digital sphere. The notion of gender performativity posits that gender is not an inherent or fixed attribute but rather a fluid and dynamic process that is continuously constituted through repeated acts and performances (Butler, 1990). "She Variety" provides a valuable lens through which to examine the performative nature of gender in contemporary China, as it showcases how women navigate, negotiate, and sometimes challenge dominant gender norms and expectations. Furthermore, this paper employs Erving Goffman's (1959) dramaturgical perspective to analyze the "front stage" and "back stage" performances of female participants and explore how they manage their self-presentation in a mediated environment.

In addition to social gender performance theory, this study draws upon the concept of emotional labor, as developed by Arlie Hochschild (1983). Emotional labor refers to the management of feelings to create a publicly observable facial and bodily display, which is often required as part of a job (Hochschild, 1983). In the context of "She Variety," female participants frequently perform emotional labor, such as displaying enthusiasm, empathy, or vulnerability, to meet the demands of the program and engage the audience. This paper also draws upon Laura Mulvey's (1975) concept of the "male gaze" to analyze how the camera, editing, and narrative techniques in "She Variety" may objectify and commodify female participants, reinforcing patriarchal power dynamics. Meanwhile, Raewyn Connell's (1987, 2005) theory of hegemonic masculinity is employed to analyze how "She Variety" may reinforce or challenge the dominant norms and expectations of gender in Chinese society. Also, this paper is informed by Angela McRobbie's (2009) feminist media studies, especially her critiques of post-feminism and neoliberal femininity, which offers a critical lens to examine how "She Variety" navigates the complexities of gender, consumerism, and media representation in contemporary China.

Furthermore, this research builds upon the growing body of scholarship on digital identities and online interactions (boyd, 2014; Turkle, 2011). The rise of social media and online platforms has provided new spaces for individuals to construct, negotiate, and perform their identities (Zhao et al., 2008). In the context of "She Variety," digital technologies play a crucial role in shaping the representation of female participants and facilitating audience engagement. This study examines how female participants utilize digital platforms to interact with fans, manage their public image, and negotiate their identities in the online sphere.

This study focuses on a selection of popular and representative "She Variety" programs (see Research Methods for a detailed list of programs and selection criteria). These programs cover a wide range of formats, including talent competitions, reality shows, and talk shows, providing a diverse and comprehensive sample for analysis.

Through a combination of textual analysis, discourse analysis, and case studies, this paper addresses the following research questions: (1) How is social gender performance manifested in Chinese "She Variety" on TV in the algorithmic age? (2) How is the emotional labor of female participants disciplined by algorithmic logic, commercial interests, and social gender norms in these programs? (3) How do female participants negotiate their digital identities in the online sphere, particularly in the context of fan interactions and online discussions related to "She Variety"?

By addressing these questions, this paper aims to contribute to a deeper understanding of the complex interplay between gender, media, and digital technologies in contemporary China. The findings of this study will shed light on the ways in which social gender norms are reinforced, challenged, and negotiated in the context of "She Variety," offering insights into the evolving landscape of gender representation in Chinese media. Furthermore, this research will contribute to the theoretical development of social gender performance theory, emotional labor theory, and digital identity studies by applying these frameworks to a new and dynamic media phenomenon. Ultimately, this study seeks to provide a nuanced and critical analysis of the role of "She Variety" in shaping and reflecting the ongoing transformation of gender dynamics in China, contributing to broader discussions on gender equality and female empowerment in the media and beyond.

Research Methods

This study employs a mixed-methods approach, combining textual analysis, discourse analysis, and case studies to investigate social gender performance in Chinese "She Variety" on TV within the algorithmic age. The research is guided by an interpretive paradigm, aiming to understand the meanings constructed around "She Variety" within their specific social and cultural context.

Data Collection

The study draws on a purposive sample of influential Chinese "She Variety" programs, including *Sisters Who Make Waves* (Season 1-5), *The Daughters of Chinese Villages* (2024), *Viva La Romance* (Season 1-6), *Working Mum* (Season 1-2), *SuperDiva* (Season 1-9), *Meeting Mr. Right* (Season 1-4), *My Little One* (Season 1-3), *The Moon is Shining* (2024), and *Listen to Me* (2021). These programs were selected based on their popularity, diverse formats (talent competitions, reality shows, talk shows), and representativeness of the genre. Data sources include video recordings of the programs, official promotional materials (posters, trailers, social media posts), and online discussions related to the programs (comments, posts on Weibo, Douban, Zhihu, etc.). Automatic speech recognition (ASR) technology (Google Speech-to-Text API) was used to transcribe audio content into text. Irrelevant information (e.g., advertisements) was removed, and the text was annotated based on speaker, scene, and time.

Data Analysis

1. Textual Analysis: The study analyzes visual and narrative elements of the programs to examine how gender is represented and performed. This includes analyzing camera angles, editing,

mise-en-scène, narrative structures, and character representations, paying particular attention to potential reinforcement or challenge of the "male gaze" and gender stereotypes.

2. Discourse Analysis: This study examines the language used in and around "She Variety," focusing on how gender ideologies are constructed and negotiated. The analysis focuses on:

Keywords and Themes: Identifying recurring keywords and themes related to gender, emotion, and identity through the use of Jieba and SpaCy for text segmentation.

Sentiment Analysis: Using sentiment lexicons (e.g., NRC and the Chinese sentiment lexicon from the Chinese Academy of Sciences' Institute of Automation) to analyze the emotional tone of the discourse.

Discourse Power: Analyzing the frequency and duration of speech acts to examine power dynamics among participants.

Narrative and Interactional Analysis: Examining narrative structures, roles assigned to female participants, and interactional patterns (e.g., politeness strategies, forms of address) to understand how they reinforce or challenge gender norms.

Gender Ideology Analysis: Situating the programs within the broader context of Chinese society to analyze how they engage with prevailing gender ideologies.

Case studies of specific programs (e.g., *Sisters Who Make Waves*) and episodes will be conducted to provide in-depth analysis of particularly relevant instances of gender performance and emotional labor. The data analysis will involve an iterative process of coding, categorization, and interpretation, drawing on both deductive (theory-driven) and inductive (data-driven) approaches.

She Variety under Algorithmic Logic: A Stage for Social Gender Performance

In the age of algorithms, the production, dissemination, and consumption of media content are profoundly influenced by algorithmic logic (Couldry & Hepp, 2017; Seaver, 2017). As an emerging genre of television programming, "She Variety" is also intricately linked to the rise and development of algorithms. If *Super Girl*, as a representative of TV talent shows, initiated the era of "mass participation" in Chinese television, then *Sisters Who Make Waves*, as a representative of "She Variety," can be seen as a continuation and upgrade of this trend in the algorithmic age. In the former, "participation" was mainly reflected in the audience's voting via text messages to decide the fate of the contestants. In the latter, "participation" is manifested in a broader digital field, where the audience interacts with the program content, female guests, and other viewers through bullet chats, comments, likes, and shares, thereby participating in the process of social gender performance. In this sense, if the "gender performance" in traditional variety shows was primarily reflected within the program, that is, in the image and interaction of female guests, then the social gender performance in "She Variety" presents a "cross-media" characteristic. It not only occurs within the program but also in the digital field outside the program and is deeply influenced by algorithmic logic. Therefore, "She Variety" provides an excellent stage for us to understand the social gender performance in the algorithmic age. This section will explore the composition and characteristics of this stage from the two levels of algorithm-driven production of "She Variety" and the cross-media dissemination of "She Variety."

Algorithm-Driven Production of "She Variety": Quantification and Recombination of Gender Elements

While the production of traditional variety shows relied more on the experience and judgment of the production team, in the algorithmic age, the production of "She Variety" increasingly depends on data and algorithm-driven approaches. If the former production logic can be summarized as "director-centered," then the latter can be described as "algorithm-driven." This is not to say that algorithms have completely replaced the role of humans but rather that algorithms have an increasingly significant weight in program production and profoundly impact all aspects of the programs. Specifically, algorithms can "discover" or "predict" audience preferences and market trends through the analysis of massive data, thereby providing "guidance" or "suggestions" for program planning, guest selection, segment design, and topic creation. In this process, gender elements are often quantified into various data that can be recognized and processed by algorithms, such as age, occupation, personality, appearance, and talents. Through the "black box" operation of algorithms, these elements are recombined into various attractive female images and relationships. In this sense, if gender elements in traditional variety shows were more reflected as a "qualitative" difference, such as "gentle woman" or "masculine man," then gender elements in "She Variety" are more reflected as a "quantitative" difference, such as "30+ sisters" or "female classmates with stories."

One important manifestation of the algorithm-driven production of "She Variety" is the selection of female participants. In the *Sisters Who Make Waves* series, the quantitative use of female participants' "age" is utilized to the extreme. The program uses "30+ women" as its core "selling point" or "memory point" and selects well-known female artists over 30 years old with different professional backgrounds, personalities, and talents as guests, such as Jing Ning, Yuqi Zhang, Qian Wan, and Hanyun Zhang (Season 1), Ying Na, Bichang Zhou, Rainie Yang, and Ou Wang (Season 2), Cyndi Wang, Jessica Jung, Gillian Chung, and Charlene Choi (Season 3), and Lijun Chen, Wei Qi, Jie He, and Xin Liu (*Ride the Wind 2024*), to attract audiences of different age groups and preferences. Behind this selection strategy is the algorithmic quantitative analysis and precise matching of female age, occupation, talents, and popularity, as well as the precise "positioning" and "feeding" of different audience groups, especially female audiences. By analyzing user data, such as user's age, gender, region, viewing history, and search records, the algorithm "calculates" which combinations of female guests are most likely to gain maximum attention and commercial interests and makes "optimizations" and "iterations" accordingly (McRobbie, 2009). In this process, the age, occupation, and personality of female guests are all transformed into data that can be recognized and processed by algorithms. They are no longer individuals with flesh and blood, emotions, and stories but "data points" or "symbols" that can be quantified, calculated, and combined.

In addition to the selection of guests, algorithms also profoundly influence the design of segments and the creation of topics in "She Variety." Taking *Sisters Who Make Waves* as an example, many segments in the program, such as the initial stage, performances, quizzes, and eliminations, are designed to maximize the display of female guests' talents, personalities, and conflicts, thereby creating topics and "explosive points." The design of these segments is often based on the analysis and "prediction" of user data by algorithms. For example, by analyzing user behavior data when watching similar programs, such as fast-forwarding, rewinding, pausing, commenting, and liking, algorithms can "discover" which types of performances, conflicts, and topics are most likely to attract users' attention and design program segments that better fit users' "tastes" accordingly. Furthermore, in *The Daughters of Chinese Villages*, the program team utilizes

algorithms to select representative rural female figures, such as "new farmers" who are "knowledgeable in agriculture," "skilled," and "talented." Based on audience feedback, the team adjusts the program's content and narrative to highlight the "power of women" in rural areas (Hall, 1997). Amplified by algorithms, these female images are disseminated through various media platforms. The show strives to balance the aesthetics and values of different groups. By igniting audience enthusiasm and anticipation for the program, it also subtly influences their self-perception and positioning, transforming this power into a significant driving force for rural revitalization. The algorithm-driven production method enables the program to more accurately capture audience preferences, enhance the program's watchability and market competitiveness, and reflect the program's attention to social issues such as female empowerment, cultural inheritance, and rural revitalization, thereby triggering broader social resonance and discussion.

It is worth noting that the algorithm-driven production of "She Variety" is not entirely "positive" or "progressive." On the one hand, the "black box" operation of algorithms often makes the production process of the programs more opaque and difficult to understand and may even contain stereotypes and "objectification" of women. For example, algorithms may "discover" or "reinforce" certain stereotypes about women based on historical data, such as "women are more emotional," "women are more suitable for performing arts," and "relationships among women are more complicated," and utilize and amplify these stereotypes in the production of the programs (Connell, 1987). On the other hand, the "optimization" and "iteration" functions of algorithms may also make the production of "She Variety" more "homogenized" and "formulaic," thus limiting the innovation and diversity of the programs. For example, if algorithms "discover" that a certain type of female guest or a certain type of program segment is more likely to gain high ratings, then program producers may tend to replicate and imitate these "successful" models while ignoring other possibilities (Goffman, 1977). From a broader sociocultural perspective, algorithms simplify women into various labels and stereotypes, which not only weakens the diversity of women but also undermines their value as independent individuals, neglecting women's agency and creativity in social, economic, and cultural development.

In conclusion, the algorithm-driven production of "She Variety" is a microcosm of media content production in the algorithmic age. It not only reflects the powerful influence of algorithmic technology on media content production but also reveals the complex process of quantification and recombination of gender elements under algorithmic logic. In the production of "She Variety," algorithms are both an "empowering" force, making program production more precise and efficient, and a potential "limiting" force, making program production more formulaic and potentially reinforcing gender stereotypes. Therefore, we need to maintain a critical reflection on the algorithm-driven production of "She Variety," recognizing both its positive aspects and its potential risks and challenges.

Cross-Media Dissemination of "She Variety": Gender Performance in Digital Fields

If the algorithm-driven production of "She Variety" mainly focuses on the gender representation within the programs, then the cross-media dissemination of "She Variety" expands the scope to a broader digital field beyond the programs themselves. In the context of media convergence, "She Variety" is no longer limited to a single television platform but achieves cross-media communication and interaction through cooperation with online video platforms, social media

platforms, short video platforms, and so on (Jenkins, 2006). While traditional TV variety shows adopted a "point-to-point" or "point-to-multipoint" one-way transmission model, "She Variety" presents a "networked," multi-directional, and interactive communication model. In this communication model, the audience is no longer just passive recipients but can actively participate in the production, dissemination, and consumption of the programs. They interact with other audiences, program producers, and female guests through bullet chats, comments, likes, shares, and derivative works. In this process, gender images and gender relations are no longer unilaterally constructed by program producers but are jointly negotiated and produced by multiple subjects in the digital field.

An important manifestation of the cross-media dissemination of "She Variety" is its popularity on online video platforms and the discussions it triggers. Taking *Sisters Who Make Waves* as an example, the program not only achieved extremely high click rates on Mango TV but also became a hot topic on social media platforms such as Weibo, Douban, and Zhihu. While watching the program, the audience is also keen to express their views and feelings on these platforms and interact with other viewers. For instance, on Weibo, topics related to *Sisters Who Make Waves* often exceed tens of billions of views, and the number of discussions reaches millions or even tens of millions. These topics include not only evaluations of the program's content and female guests but also discussions on broader social issues, such as women's age, career development, and relationships. Furthermore, on Douban, many viewers write lengthy program reviews, conducting in-depth analyses from multiple perspectives, such as program production, female image, and gender relations. These reviews often demonstrate a high level of professionalism and critical thinking, reflecting the audience's deep engagement and critical thinking about "She Variety" (McRobbie, 2009).

In addition to online video platforms and social media platforms, "She Variety" also actively utilizes the communication advantages of short video platforms to expand the programs' influence and attract younger audiences. For example, *Sisters Who Make Waves* opened an official account on Douyin (TikTok), releasing a large number of short video content such as program clips, behind-the-scenes footage, and guests' individual performances, attracting tens of millions of followers and likes. Many viewers also spontaneously edit clips of the program's highlights into short videos, upload them to platforms such as Douyin and Kuaishou, and add their own interpretations and comments. These short videos often quickly go viral, become online hotspots, and further promote the dissemination of "She Variety". For example, in *Ride the Wind 2024*, Qi Wei, with her unique stage performance and personal charm, has gathered a large online following. Her debut performance of "Seven" not only received high click-through rates on the Mango TV platform but was also widely disseminated and discussed on short video platforms such as TikTok, attracting the attention and likes of a large number of fans. Furthermore, the program *The Moon is Shining* documents the real lives of 12 young women on the vast grasslands of Inner Mongolia, showing their journey of self-reliance and personal growth. The program releases carefully edited short videos on platforms such as Douyin, quickly attracting a large audience. These short videos not only showcase the magnificent scenery of the grassland but also highlight the strength and resilience of the female guests when facing challenges. The short video format allows more young viewers to easily access the program's content and actively interact in the comment sections and bullet chats, forming a vibrant viewer community. This cross-media dissemination strategy not only

enhances the programs' visibility and influence but also extends the gender performance of "She Variety" to a wider digital field, triggering more diverse discussions and interactions (Deuze, 2007).

It is worth noting that the cross-media dissemination of "She Variety" also makes its gender performance more complex and diverse. On the one hand, different media platforms have different attributes and user groups, which leads to differences in the way "She Variety" is presented and discussed on different platforms. For example, television platforms focus more on the integrity and watchability of programs, while online video platforms emphasize user interaction and participation. Weibo is more likely to trigger large-scale discussions and controversies, while Douban focuses more on in-depth and professional analyses. On the other hand, different audience groups also have different backgrounds and interests, and their interpretations and participation in "She Variety" also vary. For example, younger audiences may pay more attention to the entertainment and topicality of the programs, while older audiences may pay more attention to the social significance and values of the programs. Female audiences may be more likely to empathize with the female guests in the programs, while male audiences may interpret the programs from different perspectives (Connell, 2005). This diversity and complexity make the gender performance of "She Variety" no longer a unidirectional and homogeneous process but a multi-directional and heterogeneous process, a process full of negotiation, debate, and even confrontation.

In conclusion, the cross-media dissemination of "She Variety" has opened up new spaces and fields for social gender performance. If the algorithm-driven production of "She Variety" mainly reflects the influence of algorithmic logic on the quantification and recombination of gender elements, then the cross-media dissemination of "She Variety" more reflects the participation and shaping of gender performance by different media platforms and different audience groups. The cross-media dissemination of "She Variety" is not merely a "top-down" process but a process in which various forces and voices are intertwined and influence each other. In this process, different media platforms, different audience groups, and different gender concepts collide and negotiate, jointly constructing the meaning of "She Variety" and shaping the social gender landscape of contemporary China. This includes challenges to traditional gender concepts and the display of femininity under the logic of neoliberalism. At the same time, we also see women's exploration and negotiation of their identities in cyberspace. For example, the discussion of women's age in the *Sisters Who Make Waves* series and the focus on rural women in *The Daughters of Chinese Villages* all reflect women's efforts to seek self-worth and diverse development in contemporary society. Looking to the future, with the continuous development of media technology and the continuous innovation of the "She Variety" genre, we can foresee that future "She Variety" will present more diverse and complex forms of gender performance. Simultaneously, we also need to maintain a critical reflection on the cross-media dissemination of "She Variety," recognizing both its positive aspects and its potential risks, such as the manipulation of gender issues by commercial interests and the harm of cyberbullying to women. Only in this way can we better understand the role and significance of "She Variety" in the transformation of social gender in contemporary China and better promote gender equality and women's empowerment. In future research, we need to pay more attention to the cross-cultural communication of "She Variety" and the interaction between "She Variety" and other media forms, such as movies, TV series, and online dramas, so as to more comprehensively grasp the cultural meaning and social impact of "She Variety."

Emotional Labor and Media Representation: Shaping Female Images in "She Variety"

While the algorithm-driven production and cross-media dissemination of "She Variety" provide a macro perspective for understanding social gender performance in the algorithmic age, the emotional labor and media representation in "She Variety" offer a micro perspective for delving into the mechanism of shaping female images. Emotional labor, as a form of "management of feelings to create a publicly observable facial and bodily display" (Hochschild, 1983), holds a prominent position in "She Variety." Female guests not only showcase their talents and personalities but also perform various forms of emotional labor according to the requirements of the production team and the expectations of the audience. These include expressing joy, sadness, anger, affection, competitiveness, etc. These emotional labors are not only part of the self-presentation of female guests but also an important component of program production, as well as an interactive process with social gender norms. Media representation, on the other hand, refers to the way in which media presents and constructs reality. It not only reflects reality but also shapes it (Hall, 1997). In "She Variety," the shaping of female images is influenced by both the emotional labor of female guests and the media representation strategies of program production. The two work together to construct the unique female group portrait in "She Variety." This section will explore the mechanism of shaping female images in "She Variety" and its relationship with social gender norms from two aspects: the discipline of emotional labor under the gaze and requirements, and the construction of the female group portrait between "authenticity" and "performance."

The "Gazed" and the "Required": The Discipline of Emotional Labor in "She Variety"

In "She Variety," the emotional labor of female guests is often under the dual discipline of being "gazed" and "required." On the one hand, as "performers" in the programs, female guests have their every move exposed under the lens, receiving the "gaze" of the production team and the audience. This "gaze" is not a neutral observation but a way of watching with power relations. It often places women in the object position of "being watched" and scrutinizes and judges their appearance, body, emotional expression, and so on (Mulvey, 1975). On the other hand, as participants in the programs, the emotional labor of female guests is also "required" and "guided" by the production team. In order to create program effects and attract audiences, the production team often makes various requests for the emotional expression of female guests, such as requiring them to show specific emotions in specific situations or requiring them to interact with other guests in specific ways. These "requirements" are both explicit, such as the direct instructions of the production team, and implicit, such as the setting of the program script and the guidance of post-production editing. Under the dual effect of being "gazed" and "required," the emotional labor of female guests is no longer a spontaneous and natural expression but a disciplined and performative labor. This kind of labor not only needs to meet the needs of program production but also conforms to the expectations of social gender norms for female emotional expression.

In the "gaze" of "She Variety," the appearance and body of female guests often become the focus of attention. For example, in *Sisters Who Make Waves*, although the production team emphasizes the talents and abilities of female guests, the audience's discussion of their appearance and figure has always been a hot topic. Many female guests also consciously or unconsciously engage in

"appearance management" and "figure management" to meet the mainstream aesthetic standards for women. For instance, in the program, we can see many female guests dieting, exercising, and even performing difficult dance moves on stage in order to maintain their figure. These efforts can be seen as women's pursuit of their own beauty, but they can also be seen as a response to the "gaze," an internalization and compliance with social gender norms. In *Viva La Romance*, the program places female guests in a constant state of being "gazed" through long-term tracking and close-up shots. Whether it is their daily life, emotional interactions, or appearance, they are captured by the camera and magnified for the audience. For example, in a certain season of the program, in a romantic dinner scene by the sea, the camera not only captured the wives' elegant manners and exquisite makeup but also emphasized their body curves and skin conditions through slow motion and close-ups. This emphasis on female appearance and body not only satisfies the audience's voyeuristic desire but also reinforces the social "discipline" of female appearance. While appreciating these images, the audience may also internalize the aesthetic standards conveyed by the program, that is, women's beauty needs to be reflected through delicate appearance, slim figure, and appropriate manners (McRobbie, 2009).

In addition to appearance and body, the "gaze" in "She Variety" also extends to the emotional expression of female guests. In many programs, female guests are required to exhibit specific emotional states to create program effects or drive plot development. For example, in the performance segments of *Sisters Who Make Waves*, female guests often need to express different emotions according to the mood of the song and the atmosphere of the stage, such as passionate, sad, sexy, or gentle. The expression of these emotions needs to be coordinated with the song and the stage, but it also needs to meet the audience's expectations of female temperament. Furthermore, in *Meeting Mr. Right*, female guests are required to show their romantic side in front of the camera, including various emotions such as sweetness, quarrels, being moved, and disappointment. Although the authenticity of these emotions is difficult to verify, they undoubtedly add drama and watchability to the program and satisfy the audience's desire to peek into the emotional lives of women. In *Working Mum*, the production team requires female guests to show a strong, optimistic, and positive side in the process of balancing work and family to convey positive energy and values. For example, in one episode, a working mother maintains an optimistic attitude and actively seeks solutions when facing the double pressure of heavy workload and her child's illness. Although this "positive" display of female emotion has a certain encouraging effect, it may also mask the difficulties and challenges that women face in real life (Connell, 1987).

Furthermore, the emotional labor of female guests in "She Variety" is often intertwined with the construction and performance of gender. Taking a telling example from *Sisters Who Make Waves*, in the first season, during the fifth public performance, Jing Ning's team performed poorly, ranking last. In this performance, Ning Jing's team chose Yixing Zhang's song "Lotus". Despite the elaborate stage design, which included wire work for their entrance, archery special effects, shields, and water sleeves, the team ultimately received only 455 votes, placing them at the bottom. After the results were announced, Jing Ning, who had always presented a strong "big sister" image, broke down in tears backstage and even proposed the idea of disbanding the team. This scene sparked widespread discussion after the program aired. This performance was a huge blow to Jing Ning's team, especially for Shengyi Huang and Bing Bai, who were eliminated after this round.

Jing Ning's tears can be interpreted from multiple perspectives. Firstly, from the perspective of emotional labor, Jing Ning's crying can be seen as a manifestation of "emotional breakdown." As the team leader, she bore the responsibility of leading her team to victory, and the poor performance undoubtedly put her under immense pressure. Throughout the program, Jing Ning had consistently displayed a strong, confident, and even somewhat dominant image, the maintenance of which in itself constituted a form of emotional labor. However, in the face of failure, her long-suppressed emotions finally erupted, and tears became an outlet for her emotional release. This scene also highlights the complexity of emotional labor in "She Variety": on the one hand, the program requires female guests to project a positive, strong, and independent image; on the other hand, it captures their vulnerable and sensitive moments to create a sense of "authenticity" and "drama." This aligns with Hochschild's (1983) argument that emotional labor can be alienating, as it requires individuals to suppress or manage their true feelings to meet external demands.

Secondly, from the perspective of social gender performance, Jing Ning's crying challenged the traditional notion of "femininity." In traditional gender norms, women are often perceived as weak and emotional, while men are seen as strong and rational. Jing Ning, through her "big sister" persona in the program, had demonstrated leadership and control that transcended traditional feminine traits. However, her tears revealed a "vulnerable" side, thereby deconstructing the "strong" image she had previously constructed. This scene also triggered a debate among the audience about whether female leaders can show vulnerability. Some viewers believed that Jing Ning's tears showed her authentic side and brought her closer to the audience, while others argued that as a leader, she should have controlled her emotions and not cried in public. This controversy itself reflects the discipline and constraints imposed by social gender norms on women, echoing Butler's (1990) notion of gender as a performance that is constantly being negotiated and contested.

Moreover, Jing Ning's crying is also related to the program's narrative strategies. Through editing and post-production, the program team highlighted Jing Ning's tears and accompanied them with sentimental music and comments from other guests, thus turning this scene into a dramatic "highlight." This approach, on the one hand, is to increase the program's ratings and topicality; on the other hand, it also reflects the program's "consumption" and "utilization" of female emotions for entertainment purposes.

In addition to talent competitions, reality shows focusing on intimate relationships also provide a rich ground for examining emotional labor. *Viva La Romance* offers a compelling example of how emotional labor is performed and negotiated within marital relationships. In the program, female guests are often observed engaging in emotion work to maintain harmony, express affection, and manage conflicts. For instance, the interactions between Ming Xi (奚梦瑶) and her husband, Mario Ho (何猷君), in a certain episode, illustrate the complexities of emotional expression in intimate relationships. While Mario Ho attempted to express his love through gifts and services, Ming Xi desired more "quality time" together. This discrepancy highlights the individualized needs in emotional expression and the importance of understanding one's partner's preferences. It demonstrates that emotional labor in intimate relationships is not merely about performing socially expected actions but also about genuine understanding and responding to the partner's emotional needs. This situation resonates with Hochschild's (1983) concept of emotional labor, extending it beyond the workplace to the realm of personal relationships, where the "management of feeling" (p. 20) becomes crucial for relationship maintenance.

Further examination of another couple, Qianyu Wu (吴千语) and her boyfriend, Brian Shi (施伯雄), in the same program, reveals the significance of "deep listening" and "empathic understanding" as forms of emotional labor. In one scene, when Qianyu Wu recalled her childhood experiences, Brian Shi listened attentively without interruption or judgment, providing a space for her to express her feelings freely. His subsequent response, "Your mother must feel guilty now," demonstrated not only his emotional attunement but also his ability to offer a new perspective that could facilitate her emotional processing. This interaction underscores the therapeutic potential of empathetic listening and understanding, which can foster deeper emotional connections within intimate relationships.

The interactions between Ming Xi and Mario Ho also shed light on the importance of "perspective-taking" in emotional labor. When Ming Xi felt overwhelmed by work pressure, Mario Ho did not simply offer advice or comfort. Instead, he tried to understand her situation from her perspective and took concrete actions to support her, such as taking care of their children. This "supportive action" not only addressed her immediate needs but also conveyed a deeper level of understanding and empathy. It exemplifies how emotional labor, when performed thoughtfully and responsively, can strengthen relationships and contribute to mutual well-being. These cases in *Viva La Romance* demonstrate that empathy and understanding are not only core strategies of emotional labor but also key factors in maintaining intimate relationships.

In addition to being "gazed," female guests in "She Variety" also often face the "requirements" of the production team, which are often closely related to social gender norms. For example, in *Sisters Who Make Waves*, although the production team claims to "show the independence and confidence of 30+ women," in the actual operation of the program, there are still many stereotypical requirements for women. For instance, the production team requires female guests to learn complex dance moves in a short period of time to demonstrate their "feminine charm." It requires them to play "gentle," "considerate," and "understanding" roles in the team to maintain the harmony of the team. It also requires them to show a "generous," "tolerant," and "unforgiving" attitude when facing conflicts to meet the social expectations of "good women." In *My Little One*, the "requirements" of the production team for female guests are more reflected in the guidance of their views on marriage and family. For example, the production team arranges for female guests to date different men and observes their reactions. It invites the fathers or mothers of female guests to the studio to comment on their daughters' performance and express their expectations for their daughters' marriage and family. Although these "requirements" are under the banner of "care" and "love," they are actually conveying traditional gender concepts to women, that is, women's ultimate destination is marriage and family, and women's value needs to be reflected through men and family (Butler, 1990).

In conclusion, the emotional labor of female guests in "She Variety" is both a kind of "self-expression" and a kind of "social performance." The emotions they display in front of the camera are both authentic and performative, both a display of themselves and a response to social gender norms. The dual discipline of being "gazed" and "required" makes the emotional labor of female guests complex and contradictory. They need to meet the needs of program production, but also to meet the social expectations of women. They need to show their individuality, but also to abide by the rules of the program. This complexity and contradiction are precisely the key to shaping female images in "She Variety." It is also this discipline and negotiation that makes the female images in "She Variety" diverse and complex. However, we also need to recognize that this diversity and complexity often unfold within a certain framework, which includes not only the commercial logic

and technical means of program production but also the gender concepts and power relations in the social culture. In the following analysis, we will further explore how "She Variety" constructs the female group portrait between "authenticity" and "performance" and analyze the relationship between this construction and social gender norms.

Between "Authenticity" and "Performance": Constructing a Female Group Portrait in "She Variety"

If the "gazed" and the "required" constitute the disciplinary mechanism of female emotional labor in "She Variety," then the tension between "authenticity" and "performance" constitutes the core driving force for the construction of the female group portrait in "She Variety." On the one hand, as a type of reality show, "She Variety" pursues the presentation of the "authentic" state of female guests, such as their daily lives, their emotional expressions, and their interactions. This "authenticity" is not only an important source of the programs' attractiveness but also the basis for the audience's resonance and identification. On the other hand, as a type of television program, "She Variety" inevitably contains elements of "performance," such as script design, scene arrangement, and post-production editing. This "performance" is not only a necessary means of program production but also an important guarantee of the programs' effect. The construction of the female group portrait in "She Variety" unfolds precisely in the tension between "authenticity" and "performance." Through the skillful use of "authenticity" and "performance," the production team satisfies the audience's expectation for "authenticity" and realizes the construction of female images in the programs.

The presentation of "authenticity" in "She Variety" is first reflected in the display of the daily lives of female guests. For example, programs such as *My Little One* and *Meeting Mr. Right* show the state and emotions of female guests in their daily lives by tracking their solitary living and dating processes. These programs often choose representative life scenes, such as cooking, cleaning, shopping, and dating, to show the personality and lifestyle of female guests. Although the filming and editing of these scenes inevitably contain certain "performative" elements, they still provide a window for the audience to peek into the "authentic" lives of female guests. The audience can glean the personality, hobbies, and values of female guests through these "authentic" details and develop an emotional connection with them. In *The Moon is Shining*, the program documents the five-month real life of 12 young women on the grasslands of Inner Mongolia. By showing their self-reliance, herding, and responses to natural challenges, the program presents the tenacity and strength of women in the face of a harsh environment. These "authentic" scenes not only allow the audience to see women's ability to survive and adapt under extreme conditions but also allow the audience to have a new understanding of the traditional image of women (Connell, 2005).

In addition to daily life, "She Variety" also attempts to present the "authentic" reactions of female guests in specific situations. For example, *Sisters Who Make Waves* stimulates the genuine emotions and reactions of female guests through high-intensity training and cruel competition. In the program, we can see the anxiety, frustration, and unwillingness of female guests when facing pressure, and we can also see their joy, excitement, and pride when they achieve success. These "authentic" emotional expressions can often move the audience and trigger their resonance. Furthermore, *Viva La Romance* observes the performance and interaction of wives in unfamiliar environments by letting them travel without their husbands. Although the production team will set

some travel themes and tasks, to a large extent, the reactions and interactions of the wives are spontaneous and authentic. These "authentic" interactions not only show the friendship and tacit understanding between the wives but also show their respective personalities and ways of dealing with things. In *Working Mum*, the production team observes the performance and reactions of female guests at work by setting various workplace challenges and tasks. For example, the program will require female guests to complete a marketing plan within a limited time or to conduct crisis public relations when facing customer doubts. These "authentic" workplace situations not only test the professional abilities of female guests but also show their adaptability and emotional management skills under pressure (McRobbie, 2009).

However, we also need to recognize that the "authenticity" presented in "She Variety" is not completely objective but a kind of "authenticity" constructed by the media. On the one hand, the production team will select and process the material during the filming and editing process to highlight certain aspects of the content and cover up or weaken certain aspects. For example, in *Sisters Who Make Waves*, the production team often uses editing to strengthen the competitive relationship between female guests and weaken their cooperation and mutual assistance. Although this selection and processing are to enhance the drama and watchability of the program, it may also lead to the distortion and misinterpretation of "authenticity" (Goffman, 1959). On the other hand, the performance of female guests in front of the camera may also be affected by "camera awareness." They may consciously or unconsciously adjust their words and behaviors to meet their own or the production team's expectations. For example, in *My Little One*, some female guests may deliberately show their "virtuous" side in front of the camera, such as cooking and doing housework, to meet the social expectations of "good daughters" and "good wives." Although this kind of "performance" may be unconscious, it still has an impact on the audience and may reinforce certain gender stereotypes (Butler, 1993).

In conclusion, the construction of the female group portrait in "She Variety" is a process of continuous negotiation and balance between "authenticity" and "performance." The production team satisfies the audience's expectation for "authenticity" and realizes the construction of female images through the presentation of "authenticity" and the arrangement of "performance." The female images in "She Variety" are both diverse and stereotypical, both challenging traditional gender concepts and maintaining the existing gender order. This complexity and contradiction are precisely the charm of "She Variety" and the reason why it has triggered widespread discussions. The shaping of the female group portrait in "She Variety" also reflects society's expectations and imagination of women, as well as how this shaping affects female audiences' self-perception and identity construction. This construction of the female group portrait between "authenticity" and "performance" also provides a unique perspective for us to understand the living conditions and social situation of contemporary Chinese women. In the algorithmic age, as an important cultural phenomenon, the shaping and dissemination of female images by "She Variety" not only reflect current social gender concepts but also participate in the reproduction and transformation of social gender concepts. Therefore, we need to maintain a critical focus on "She Variety," not only to see its positive aspects, such as the display of diverse female images and the emphasis on female subjectivity, but also to see its potential risks, such as the stereotyping, commodification, and instrumentalization of women. Only in this way can we better understand the role and significance of "She Variety" in contemporary Chinese social and cultural life and better promote the

development of gender equality. Future research can further explore the audience reception of "She Variety," such as how female audiences of different ages, educational backgrounds, and regions interpret the female images in "She Variety" and how "She Variety" affects their self-cognition, emotional models, and social behavior.

Interaction Between "Screen" and "Fingers": Negotiating Digital Identities Related to "She Variety"

While the previous two sections mainly discussed the production and presentation of "She Variety," this section will shift the focus to the reception and consumption of "She Variety," especially the negotiation of digital identities related to "She Variety." In the algorithmic age, digital media platforms have become important venues for people to obtain information, express opinions, and participate in social interactions, and they have also become important spaces for gender identity negotiation. For "She Variety," its influence has long surpassed the TV screen itself and extended to the vast cyberspace. The audience is no longer just passively watching the program in front of the TV but can watch the program, post comments, participate in discussions, and interact with other viewers on online platforms through terminals such as computers and mobile phones. Through these behaviors, they construct and negotiate their own digital identities. The interaction between "screen" and "fingers" refers not only to the connection between the virtual and real worlds inside and outside the screen but also to the interaction between the audience and the program, the audience and the audience, and the audience and themselves. This section will explore the negotiation of digital identities related to "She Variety" and its relationship with social gender performance from two aspects: the emotional connection and identity formation in fan communities, and the negotiation of diverse female identities in cyberspace.

"Resonance" Inside and Outside the "Screen": Emotional Connection and Identity Formation in Fan Communities

Fan communities play an important role in the viewing and discussion of "She Variety." They are not only loyal viewers of the programs but also active disseminators and reproducers of the program content. The formation of fan communities stems not only from a shared love for the programs but also from an emotional identification with the female guests in the programs. In fan communities, fans express their love for the programs and support for the female guests in various ways, such as ranking and controlling reviews for them on Weibo, writing long reviews for them on Douban, and making derivative videos for them on Bilibili. These behaviors not only enhance the emotional connection between fans and the programs but also promote identity formation among fans. In the process of participating in "She Variety," fans not only gain entertainment and recreation but also find like-minded partners and establish a community relationship based on common interests and emotions.

The fan communities of "She Variety" are often formed around female guests. For example, each guest of *Sisters Who Make Waves* has her own fan group, and these fan groups often give themselves a name related to the guest. For instance, Ning Jing's fans call themselves "Sea King," Wan Qian's fans call themselves "Little Pomegranate," and Zhang Yuqi's fans call themselves "Qi Shi." These fan groups not only actively participate in the promotion of the program during its broadcast but also continue to pay attention to and support the career development of female guests

beyond the program. For example, when a guest has a new work released or a new endorsement announced, her fans will promote and support her at the first opportunity, helping her increase her visibility and influence. The formation of fan communities centered on female guests not only reflects the fans' love and support for them but also reflects the psychological needs of female viewers to seek emotional resonance and identity formation in the viewing of "She Variety" (Jenkins, 2006).

In addition to being centered on female guests, some fan communities of "She Variety" are formed around the program itself. For example, the "group fans" of *Sisters Who Make Waves* are not only concerned about a certain guest but the entire program and the female spirit conveyed by the program. These fans actively participate in all aspects of the program, such as voting for their favorite teams and making suggestions for the development of the program. They also actively disseminate the values and concepts of the program beyond the program. For example, slogans such as "Thirty and powerful, youth returns" and "Ride the wind and waves, I am the brightest" have become the motto of many female viewers. The formation of program-centered fan communities not only reflects the fans' love and loyalty but also underscores the role of "She Variety," as a cultural phenomenon, in shaping and leading the values of contemporary women (Deuze, 2007).

It is worth noting that the emotional connection and identity formation of fan communities are not always positive or progressive. In some cases, competition and conflict among fans may also lead to negative online behaviors, such as insulting each other and malicious reporting. For example, during the broadcast of *Sisters Who Make Waves*, there were many "mutual tearing" incidents between fans of different guests. These incidents not only damaged the harmonious atmosphere of the fan community but also had a certain negative impact on the reputation of the program. In addition, the excessive devotion and fanaticism of some fans may also cause trouble and pressure for female guests. For example, some fans will excessively interfere with the private lives of female guests or morally kidnap them, requiring them to act according to their own wishes. Although these behaviors are under the banner of "love," they actually infringe on the autonomy and privacy of female guests (boyd, 2014).

In conclusion, fan communities are an important part of the digital identity negotiation of "She Variety." By participating in the viewing and discussion of "She Variety," fans not only express their love and support for the programs and female guests but also construct their own digital identities and establish emotional connections and identity formation with other fans. This kind of emotional connection and identity formation has both a positive side, such as enhancing solidarity and mutual assistance among women and spreading positive female values, and a negative side, such as possibly leading to cyberbullying and excessive interference with female guests. Therefore, we need to maintain a dialectical and critical understanding of the fan communities of "She Variety," not only to see their positive role but also to be wary of their potential risks. In future development, we need to guide fan communities to participate in the interaction of "She Variety" more rationally and civilly, exert their positive influence, avoid their negative influence, so as to promote the healthy development of "She Variety" and contribute to building a more equal and harmonious cyberspace.

Resistance" at the "Fingertips": Negotiating Diverse Female Identities in Cyberspace

While the fan communities of "She Variety" more embody the emotional connection and identity formation of female audiences, the broader cyberspace provides a platform for women to express themselves, challenge mainstream gender concepts, and negotiate diverse female identities. During and after the broadcast of "She Variety," various network platforms have become important venues for female netizens to discuss programs, express opinions, and strive for discourse power. Female netizens are no longer just passive recipients but active participants and expressers. Through their "fingertips," they construct their own digital identities outside the "screen" and participate in the reproduction and transformation of social gender concepts. This "resistance" at the "fingertips" is reflected not only in the criticism and deconstruction of certain stereotypical female images in "She Variety" but also in the construction and negotiation of diverse female identities.

In online discussions related to "She Variety," female netizens often critically interpret the female images and gender concepts presented in the programs. For example, during the broadcast of *Sisters Who Make Waves*, although the production team attempted to showcase the independence and confidence of women, some female netizens still pointed out the existence of gender stereotypes and the objectification of women in the program. They believe that the program's emphasis on women's age, focus on women's appearance and figure, and the rendering of competitive relationships among women all reflect the discipline and constraints of patriarchal culture on women. Although these critical voices may not be mainstream, their existence itself reflects female netizens' demands for gender equality and expectations for diverse female images. Furthermore, after the broadcast of **Listen to Me**, some female netizens questioned the authenticity and representativeness of certain "feminist" remarks in the program. They believe that although these remarks sound "satisfying," they may actually be detached from the real lives of most women and may also exacerbate gender antagonism. Although these discussions and debates are sometimes intense or even chaotic, they are themselves a way for women to strive for discourse power and negotiate female identities (Butler, 1993).

In addition to criticism and deconstruction, female netizens also actively construct and negotiate diverse female identities in cyberspace. For example, in the discussion of *Sisters Who Make Waves*, many female netizens expressed their approval and love for the "sister culture." They believe that the "sisters" displayed a female image different from the traditional "girl" culture, a more mature, confident, and independent female image. The rise of this "sister culture" not only reflects the changes in female aesthetic concepts but also reflects women's repositioning of their own social roles. Furthermore, in the discussion of *My Little One*, some female netizens reflected on and criticized the phenomena of "urging marriage" and "urging childbirth" presented in the program. They believe that women's lives should not be defined by marriage and childbirth, and women have the right to choose the lifestyle they want. Although these discussions cannot fully represent the views of all women, they at least indicate that more and more women are beginning to realize the problem of gender inequality and are trying to change the status quo in their own way (Connell, 1987).

It is worth noting that the negotiation of diverse female identities by female netizens in cyberspace is not always smooth sailing but full of challenges and obstacles. On the one hand, traditional gender concepts and social pressures still exist, and women often encounter various obstacles and doubts in the process of pursuing self-realization and gender equality. For example, some female netizens may be attacked and insulted by other netizens when expressing their

dissatisfaction with certain female images in "She Variety," and they may even be labeled as "feminazis" or "pastoral feminists." On the other hand, the anonymity and virtuality of cyberspace also allow some people to unscrupulously make sexist and gender-violent remarks, which poses a threat and harm to women's online participation. For instance, some female guests may suffer from cyberbullying after participating in "She Variety" programs, and their appearance, figure, words, and deeds may become targets of attack (McRobbie, 2009). This kind of cyberbullying will not only cause psychological harm to female guests but also have a "chilling effect" on other women's participation in online discussions.

In conclusion, while the previous sections focused more on the production and presentation of "She Variety," this section focuses more on the reception and consumption of "She Variety," especially the negotiation of diverse female identities by female netizens in cyberspace. Online discussions related to "She Variety" provide a platform for women to express themselves, participate in public affairs, and strive for discourse power. Through their "fingertips," female netizens are conducting discussions and negotiations on gender identity, gender relations, and gender equality outside the "screen." Although this kind of discussion and negotiation is full of challenges and obstacles, it is itself a kind of progress, a manifestation of the awakening of female subject consciousness. In this process, female netizens are not only participating in the meaning production of "She Variety" but also participating in the transformation of social gender concepts in contemporary China. The interaction between "screen" and "fingers" is not only a reflection of the influence of "She Variety" but also an important part of the meaning production of "She Variety." "She Variety" provides female netizens with materials for discussion and a platform for expression, and the participation and expression of female netizens also affect the production and dissemination of "She Variety" in turn. This two-way interaction makes "She Variety" an important place for the negotiation of social gender relations in contemporary China. Future research can further explore the interaction mechanism between "She Variety" and cyberspace, such as how "She Variety" uses online platforms for marketing and promotion, how online public opinion affects the program production of "She Variety," and how female netizens negotiate their digital identities in interactions with other netizens. Only by deeply understanding these issues can we better grasp the sociocultural significance of "She Variety" and better promote the development of gender equality.

Conclusion

This paper has investigated the discipline of emotional labor and the negotiation of digital identities in Chinese "She Variety" on TV from the perspective of social gender performance in the algorithmic age. The study finds that "She Variety," as an emerging genre of television programming, not only showcases the diverse roles and subjective consciousness of women in contemporary society but also reflects the multiple influences of algorithmic logic, commercial interests, and traditional gender norms on the construction of female images. The production, dissemination, and consumption of "She Variety" are closely related to algorithmic logic. Algorithms have brought new development opportunities to "She Variety" but have also imposed important constraints on it. In the production process of "She Variety," algorithms participate in the quantification and recombination of gender elements, making the presentation of female images more in line with market demands and audience expectations, but it may also lead to the stereotyping and homogenization of female images. In the dissemination process of "She Variety,"

algorithms promote the cross-media dissemination of "She Variety," making the influence of "She Variety" break through the limitations of the TV screen and extend to a broader digital field, but it also makes the gender performance of "She Variety" present more complex and diverse characteristics.

In the presentation of "She Variety," the emotional labor of female guests is under the dual discipline of being "gazed" and "required." They need to meet the needs of program production but also conform to the expectations of social gender norms for women. In the tension between "authenticity" and "performance," "She Variety" constructs a female group portrait that is both diverse and somewhat stereotypical. The construction of this female group portrait not only reflects the living conditions and social situation of contemporary Chinese women but also participates in the reproduction and transformation of social gender concepts. In online discussions related to "She Variety," female netizens actively participate and express themselves, negotiating diverse female identities through the interaction between their "fingers" and the "screen." This negotiation is both a critique and deconstruction of certain stereotypical female images in "She Variety" and a construction and expression of their own digital identities.

This study also has certain limitations. First, due to the large number of "She Variety" programs, this paper only selected some of them for analysis, and the research results may not fully represent the situation of all "She Variety" programs. Second, this study mainly adopted the methods of textual analysis and discourse analysis, and lacked empirical investigation of the audience reception of "She Variety." Future research can adopt a combination of quantitative and qualitative methods, such as questionnaires and in-depth interviews, to gain a deeper understanding of the audience of "She Variety." In addition, future research can further explore the cross-cultural communication of "She Variety," such as the reception of "She Variety" overseas, and comparative studies between "She Variety" and female-themed programs in other countries and regions.

Despite its limitations, this study still has important theoretical and practical significance. At the theoretical level, this study applies multiple theoretical frameworks such as social gender performance theory, emotional labor theory, and digital identity theory to the emerging media phenomenon of "She Variety," enriching and developing the connotation of these theories, and also providing a new perspective for understanding gender politics in the algorithmic age. At the practical level, this study reveals the important role of "She Variety" in the negotiation of social gender relations in contemporary China, and also points out the potential and limitations of "She Variety" in promoting gender equality. The conclusions of this study help us to understand the sociocultural significance of "She Variety" more deeply, and also provide insights for us to better promote the development of gender equality. Furthermore, the findings of this study have several practical implications for the development of "She Variety" and the promotion of gender equality in the media industry and beyond.

1. Enhancing Media Literacy

"She Variety" programs, while offering a platform for female visibility, should also be viewed critically. It is crucial to enhance media literacy among audiences, particularly women, enabling them to critically analyze media representations and understand the underlying power dynamics. Educational initiatives could be implemented to teach audiences how to decode media messages and recognize the potential biases embedded in seemingly empowering content.

2. Diversifying Content and Representation

Producers of "She Variety" should strive to diversify the representation of women beyond the confines of traditional gender roles and stereotypes. This includes showcasing women from diverse backgrounds, professions, and age groups, and presenting a wider range of female experiences and perspectives. For instance, future programs could feature women in traditionally male-dominated fields, or explore the lives of women from different ethnic and socioeconomic backgrounds, thereby challenging the often-narrow portrayal of women in mainstream media.

3. Fostering Authentic Emotional Expression

While emotional labor is inherent in performance, "She Variety" programs should create a space where female participants feel empowered to express their authentic emotions without fear of judgment or penalty. This could involve reducing the emphasis on sensationalized conflicts and highlighting moments of genuine connection and support among women. Programs could also include behind-the-scenes segments that reveal the pressures and challenges faced by female participants, offering a more nuanced portrayal of their emotional experiences.

4. Promoting Gender-Sensitive Production Practices

The media industry should adopt gender-sensitive guidelines for the production of reality TV programs. This includes training for producers, directors, and editors on gender issues, as well as establishing ethical standards for the portrayal of female participants. For example, production teams could undergo workshops on gender sensitivity and unconscious bias, and programs could be evaluated based on their adherence to gender-sensitive guidelines.

5. Encouraging Public Discourse and Engagement

"She Variety" programs can serve as a catalyst for public discourse on gender issues. Broadcasters and online platforms should actively encourage audience engagement and provide platforms for constructive dialogue. This could involve hosting online forums, inviting experts and scholars to comment on the programs, and facilitating discussions on social media. By fostering a more participatory and critical viewing culture, "She Variety" can contribute to raising public awareness of gender equality.

6. Policy Recommendations

Policymakers should consider the role of media in shaping gender norms and promoting gender equality. This could involve supporting the production of media content that challenges gender stereotypes and promotes positive female role models. Furthermore, policies could be implemented to regulate the use of algorithms in content production and dissemination to mitigate potential biases and ensure fair representation of women. For example, policies might encourage greater transparency in how algorithms are used to select and promote content, as well as provide funding for research on the gendered impacts of algorithmic culture.

By implementing these recommendations, "She Variety" programs can move beyond mere entertainment and become a powerful tool for promoting gender equality and social change. They can contribute to a more nuanced understanding of women's experiences, challenge harmful stereotypes, and inspire positive transformations in the media industry and society at large. The

conclusions of this study help us to understand the sociocultural significance of "She Variety" more deeply, and also provide insights for us to better promote the development of gender equality. As a mirror, "She Variety" reflects the changes in social gender relations in contemporary China and also heralds the possibility of future gender relations development. We expect that future "She Variety" will more consciously undertake the social responsibility of promoting gender equality, show more diverse and inclusive female images, and contribute to building a more just and harmonious society.

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Analysis of the value chain of SF Holding

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Abstract

With the rapid development of China's e-commerce and the transformation of consumer consumption habits, the express delivery service industry has ushered in unprecedented opportunities and challenges. The proportion of e-commerce express delivery business in the overall express delivery industry is increasing, and at the same time, market competition is becoming more and more fierce, and price wars and homogenization are becoming increasingly serious. In this context, with its unique business model and innovative strategy, SF Holding stands out from the competition in the industry and becomes a leader in the industry. This article explores the competitive advantages of SF Holding in the express service market through the value chain analysis method, and analyzes how it can create a profit model in line with its own development through the optimization of each link. The study found that the success of SF Holding lies not only in its solid market positioning and high-quality service system, but also in its ability to continuously innovate and optimize. SF Express is able to maintain its advantage in the fierce industry competition by constantly adjusting and improving its value chain to maintain its competitiveness in the volatile market environment. Finally, this paper puts forward suggestions for the future development of SF Holding in the express delivery industry, aiming to provide reference for other enterprises and help them stand out in the fierce market competition.



Full Text Article



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Keywords: SF Holding; value chain analysis; express delivery industry

Introduction

In recent years, with the rapid development of China's logistics industry and the continuous expansion of market scale, SF Holding, as an industry leader, stands out in the fierce competition and maintains steady growth in the complex logistics industry competition with its efficient logistics network and excellent service quality. Based on 's value chain theory and from the perspective of accounting profession, this paper systematically analyzes the main business activities and supporting activities of SF Holding, including procurement management, operation management, logistics network layout, marketing and service support. In addition, through the in-depth analysis of SF Holding' financial data, the company's specific performance in cost control, revenue structure optimization and capital expenditure is discussed, so as to reveal the competitive advantages and risks of SF Holding in all aspects of the value chain. The purpose of this paper is to

provide a valuable reference for enterprises in the logistics industry to optimize operation management and enhance market competitiveness.

Literature review

Value chain

Michael Porter's 1985 theory of "value chain" provides a powerful tool for companies in the logistics industry to analyze their competitive advantage. John Shank and Vijay Govindarajan (1992) gave a broader definition to the concept of value chain, proposing that the value chain of any enterprise is the entire process of production operations, from the supply of the initial raw materials by the supplier to the processing of the product to the consumption of the customer. W. Hines (1993) provides another perspective for the study of SF Holding. Hines proposed that the company's products not only exist for profit, but more importantly, to meet consumer needs through products. Through its advanced logistics service system, SF Holding has accurately met consumers' needs for fast and accurate delivery and established its brand advantage.

In addition, Hines emphasized the important position of suppliers and consumers in the value chain, and SF Holding's research also revealed that its close cooperation with suppliers and continuous interaction with consumers in its supply chain management have formed a highly synergistic value chain system. Hoque (2006) proposes that enterprises should implement activity-based costing (ABC) in all aspects of their production and operation. He emphasized that from the perspective of the value chain, the management of detailed activity costing can help enterprises more clearly identify and analyze the costs of each link, and then find possible defects in the cost management process. Gordon (2019) argues that value chains are highly comprehensive, and points out that value chains have multiple structures, each with its own unique features.

Analysis and discussion

Company profile

SF Holding is a leading integrated logistics service provider in China, with businesses covering express delivery, logistics, supply chain management, cross-border e-commerce logistics and other fields. As a leading enterprise in China's private express delivery industry, SF Express is known for its high timeliness and high service quality, and occupies an important position in the domestic and foreign markets. In 2017, SF Express officially landed on the A-share market through backdoor Dingtai New Materials, becoming the first private express delivery company to be listed in China's express delivery industry. As of 2023, SF Express has developed into an enterprise with a global logistics network, providing diversified logistics solutions covering intra-city distribution, air freight, cold chain logistics and other services.

SF's business model

Since 2005, SF Holding has fully implemented the direct sales model, and through this initiative, all aspects of the business process have been organized in a unified manner, thereby improving the standardization of customer service and company operation management, enhancing the standardization and compliance of internal management, and ensuring customer loyalty and brand

reputation. The implementation of the direct sales model is regarded as an important guarantee for SF Holding to achieve its business objectives and implement the company's strategy.

However, in 2020, SF Holding began to re-layout and introduce a franchise network. The purpose of this strategic adjustment is to better meet the growing demand for e-commerce express delivery. Through the franchise network, SF Express is not only able to expand its coverage at a low cost, but also continue to leverage its strong brand effect and leverage its existing logistics network management technology to ensure service quality. In addition, the franchise model also helps to better implement the national strategy of "express delivery to the countryside", especially in third-tier and below cities and rural areas. Due to the scattered distribution of these regions, it is difficult for traditional direct sales networks to effectively cover, so the flexibility of the franchise network can better serve users in these regions.

SF's main products

SF's core business is to provide domestic and foreign express delivery services, covering a variety of service types such as standard express, special express, heavy cargo express, cold chain express delivery, etc., to meet the needs of different customers. At the same time, SF also provides supply chain management, which provides customers with comprehensive supply chain solutions, including warehousing, transportation, sorting, distribution, etc., to support the logistics needs of e-commerce, retail, manufacturing and other industries. In addition, SF Express is also engaged in cold chain logistics, and SF Express provides temperature-controlled logistics services to meet the distribution needs of commodities requiring temperature-controlled transportation, such as fresh food and medicines. In addition to domestic logistics, SF Express provides cross-border logistics services through cooperation with major logistics companies around the world, covering various modes of transportation such as air, sea and land. These businesses constitute the main source of revenue for SF Holding, covering a wide range of sectors from single express delivery to integrated supply chain solutions.

Analysis of the value chain of SF Holding

1. Internal value chain

Porter's value chain system is mainly based on the manufacturing industry, and SF Holding is a logistics enterprise, which is not completely consistent with the value chain of the manufacturing industry, therefore, according to the business process of SF Holding Company, its internal value chain is obtained, and the basic activities include: receiving, sorting, transportation, and warehousing, delivery and after-sales, auxiliary activities include: infrastructure construction, human resource management, technology development, material procurement, business outsourcing, as shown in the following figure:

Ancillary activities	Infrastructure	Profit
	Human resources	
	Technology development	

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	Material procurement						
	Outsourcing						
Foundational activities	Pick-up	Sorting	Transport	Delivery	Warehousing	After-sales	

Figure 1 The internal value chain of SF Holding

Data source: according to the tide information

Specifically, the receipt and delivery of parts in basic activities is a very important part of logistics enterprises, which directly contact with customers, affecting the reputation and customer satisfaction of the company, thereby indirectly affecting the core competitiveness of the enterprise. Sorting is the most demanding link in logistics services, and reasonable sorting can ensure the efficient transportation and receipt of goods; As the largest part of SF's cost structure, the transportation link makes its services efficient through the three-in-one logistics network. The warehousing link is the connection point of each link in the value chain activities, and the cost of this link includes the salary of the warehouse management personnel and the storage rent. The after-sales service provides a guarantee for SF Holding' express delivery operations, including inquiring about logistics information, complaints, and claims, and the customer satisfaction implemented in this link directly affects the customer's evaluation of the quality of the company's logistics services. In terms of infrastructure, SF Express has obvious advantages. It is the largest cargo airline in China and the world's leading cargo airline, and the largest cargo owner in China's air cargo. Ezhou Huahu Airport, jointly built by SF Express and the government, will be the first cargo hub airport in Asia and the fourth in the world.

(1) Customer needs

Because products and services ultimately need to be consumed by customers in order to achieve profits. Customer demand is the first step in the whole process, which directly affects whether customers will make SF Express their first choice in the future. At present, SF Express still has problems such as a high rate of express complaints, slow progress in handling consumer complaints, and failure to conduct in-depth research on consumer preferences. And in order to meet the diverse needs of customers, companies should use modern big data technology to carry out forecasts and reasonably plan resource investment. Reduce the investment of idle resources, so as to improve profitability, real-time scheduling, and dynamic allocation of personnel, vehicles and other resources according to the actual situation.

(2) In terms of door-to-door pickup and delivery

In order to reduce the error rate of express delivery, shorten the delivery time, and reduce the time Cost, SF Express carries out comprehensive digital operation and online management in terms of terminal collection and delivery. Although SF Express has relevant regulations on door-to-door pickup, there are still problems such as the bad attitude of couriers. The collection and delivery area is not clear, and it cannot be dynamically predicted in real time, which is difficult in planning, and it is time-consuming in calculating distance, standards, and customer requirements. There is still a need for improvement in the labor intensity and reasonable remuneration of couriers, and the

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differentiated service is not carried out. Based on the above problems, SF Express needs to carry out intelligent scheduling and flexible work system to improve the labor intensity of couriers; According to multi-dimensional numbers such as region, difficulty, and quality, dynamic accrual is realized to ensure that the remuneration of the little brother is reasonable and fair, and task-based management and visual monitoring are implemented.

(3) Parcel sorting and transit

In the parcel sorting process, efficient and error-free sorting can ensure the safe and accurate arrival of the shipment. If it is not done properly, it will reduce the quality of service and affect the customer experience. In the transit link, the key logistics hub link is indispensable, so SF Express needs to build a large number of transit yards, upgrade automation equipment in the transit process, and increase the transit processing capacity. In terms of express packaging, we will minimize excess packaging, prevent waste of resources, use recyclable materials to help carbon peak and carbon neutrality, increase green investment, and promote green and sustainable development. Carry out security inspection, video tracking, operation monitoring, and establish risk early warning mechanisms for express mail on site; Real-time monitoring of site capacity, reasonable planning of resources or dynamic diversion, and improvement of transit timeliness.

(4) Logistics and transportation.

The characteristics of SF Express's "fast", "safe" and "efficient" are the reasons why many consumers choose SF, so logistics and transportation links are very important for express delivery companies, and the speed of transportation affects whether customers can get their packages within the estimated time. In 2009, SF's self-built airlines improved transportation efficiency, but the transaction cost of outsourcing capacity is still high. The utilization efficiency of the vehicle is not high, and the transport vehicle is often not loaded. The design of the transportation route is not reasonable, and the transit bears the transportation cost of the empty car. The workload of the transfer station has been increased. SF Express should pay attention to the use of multiple modes of transportation such as air, land and rail, and manage multimodal transportation by land and air on a platform-based basis. To build an information-based logistics system of "Sky Net + Ground Network + Information Network", SF Express should combine big data and Internet technology to open up a variety of transportation capacity systems, output abnormal flight scheduling and cargo diversion plans, ensure timeliness, and realize intelligent resource management.

(5) After-sales service.

In terms of SF's after-sales service, express delivery to consumers often has problems such as damaged and lost parcels, customer disputes, etc. It will affect customers' evaluation of SF's service quality. After-sales service is an indispensable part of the value chain as the final step in the entire sales process. After-sales processing can enhance a good brand image, improve high-quality service and create a good brand value, which is widely recognized by customers, the industry and society, and has the upper hand in the industry. In order to promote the long-term development of the enterprise, SF Express maintains customer loyalty. The whole process of sales should be investigated, the customer database should be improved, the customer's complaints should be fed back in a timely manner, the after-sales service should be improved, and efforts should be made to enhance the brand image.

In addition, SF Express has abundant transportation resources and is able to provide customers with domestic and cross-border multimodal transportation services. On the whole, SF Holding has invested a large amount of fixed assets in infrastructure. In terms of procurement management, SF's procurement materials focus on packaging materials and transportation equipment. In terms of procurement model, the main way of SF Holding is to pass supplier certification and establish alliances with long-term cooperative suppliers. As a key part of cost management, labor cost accounts for a large proportion of labor cost due to the high mobility of couriers and the low quality of employees.

2. External value chain

The external value chain of the enterprise refers to the business activities carried out by the enterprise that have a large connection with each other and cannot be severed, which brings value to the enterprise while also bringing value to other enterprises, including two aspects: horizontal and vertical. The horizontal value chain is also called competitor value chain analysis, and the vertical value chain is also called industry value chain analysis.

(1) Vertical value chain

As shown in the figure below, the vertical value chain of SF Holding includes upstream suppliers, the enterprise itself and downstream users, and SF Holding is located in the center of the industry value chain, connecting suppliers and customers, connecting suppliers and customers, establishing strategic alliances, and communicating with upstream and downstream enterprises in a timely manner.

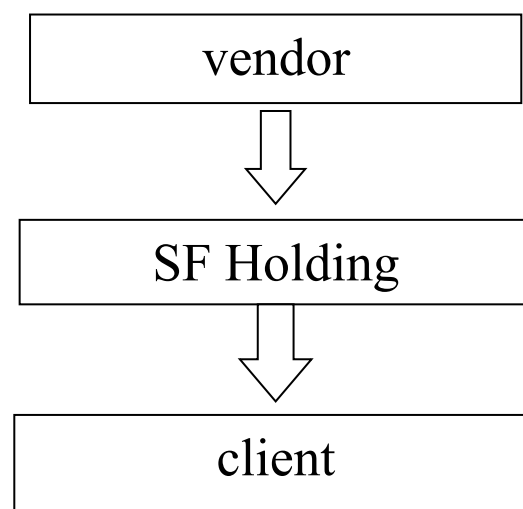


Figure 2 Composition of the vertical value chain of SF Holding

Data source: according to the tide information

(2) Supplier value chain analysis

In the logistics industry, suppliers mainly include providers in the fields of infrastructure construction, transportation and fuel. Fuel price fluctuations and infrastructure maintenance costs are the main drivers of upstream costs, which directly affect the overall operating expenses of enterprises. However, fuel prices are regulated by the international market, making it difficult for companies to intervene directly. Therefore, SF Express needs to reduce unnecessary cost waste and non-value-added resource investment as much as possible by broadening procurement channels and

optimizing resource allocation. From 2019 to 2021, the procurement amount of SF's top five suppliers increased year by year, from 8,187,426,000 yuan in 2019 to 22,479,993,000 yuan in 2021, nearly tripling. Although the amount of procurement has increased year by year, its proportion of the total annual procurement value has remained at about 10%, and the fluctuation range is small. SF can further deepen its partnerships with major suppliers, improve supply chain stability, and ensure the continuity and reliability of infrastructure and capacity supply.

(3) Customer value chain analysis

Customer demand is the core driving force to promote enterprise growth. As competition in the express delivery industry intensifies, SF Express must continuously improve customer experience and meet diversified needs in order to maintain its leading position, so as to enhance customer stickiness and loyalty. From 2019 to 2021, the sales of SF's top five customers increased steadily, from 3,485,213,000 yuan to 11,562,739,000 yuan. However, the proportion of this part of revenue in total sales has always been low, not exceeding 6%, indicating that SF Express is less dependent on large customers and has a relatively scattered customer structure.

In order to further increase its market share, SF Express needs to expand its customer base, focus on tapping the consumption potential of potential customer groups, and enhance customer lifetime value. At the same time, SF Express can customize differentiated solutions for customers in different industries, provide accurate services, and enhance market penetration.

(4) Horizontal value chain

In recent years, with the rapid development of the logistics industry, there are mainly the following types of logistics and transportation enterprises in the market: first, self-operated and self-built logistics, with Suning Logistics and Jingdong Logistics as the main representatives, and second, postal express and SF Express based on business parts; the third is the rookie network alliance in which Alibaba is a shareholder; Fourth, the whole network of small-scale transportation enterprises, such as daily express.

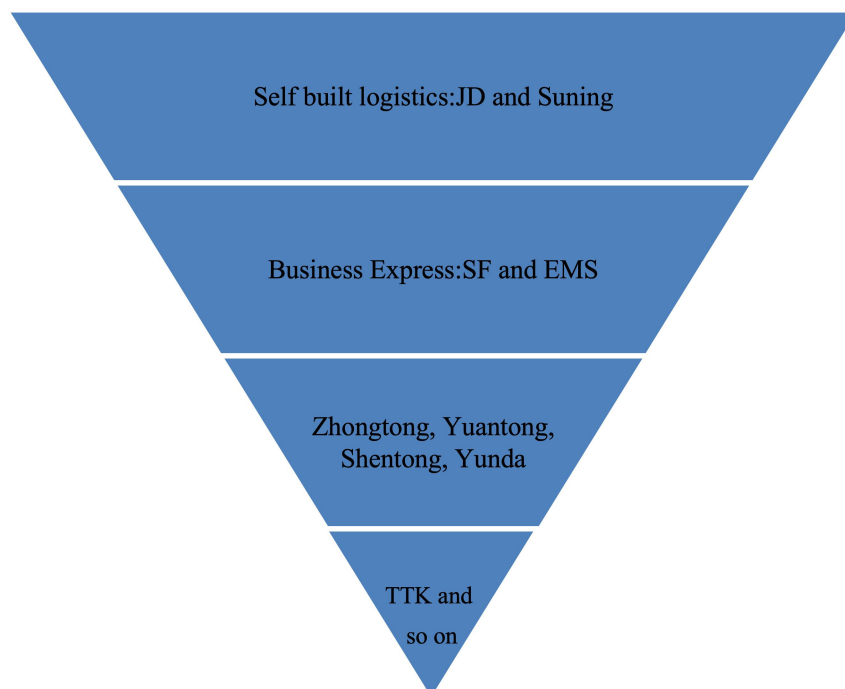


Figure 3 Classification of the logistics industry

Source: State Post Bureau

As a tertiary industry, the quality of logistics and transportation enterprises directly determines whether the enterprise has a place in the logistics market, in which the level of self-management and the quality of express service are positively correlated. Due to the self-operated mode, the will of the headquarters is easier to deliver, and the service and quality can be directly standardized and assessed. Under the franchise model, due to the inconsistency of the corporate interests of the headquarters and the franchised merchants, coupled with the progression of the level, the cost of information transmission is high, and the headquarters cannot contact the end customers, and the accompanying management is difficult. Therefore, the more mature the self-operated model, the higher the service quality, and the more customer satisfaction can be obtained. SF Holding is a representative of the early self-operated logistics enterprises, coupled with the integrated vertical direct management model, so that SF Holding has ranked first in the satisfaction survey of logistics enterprises in recent years.

Analyzing the value chain of competitors will help SF clarify its own positioning in the industry, gain insight into market dynamics, and optimize its strategic layout. By studying competitors' supply chains, market strategies, and customer relationship maintenance methods, SF is able to identify the gaps between itself and its peers and improve operational efficiency.

In recent years, the express delivery industry has maintained rapid growth, and the annual express business revenue in 2021 reached 1,033.23 billion yuan, a year-on-year increase of 17.5%. In the context of the overall expansion of the industry, the competition is becoming more and more fierce. Among the five major express delivery companies, SF Express ranks first in terms of revenue, which is mainly due to its first-mover advantage and scale effect in the early stage of the express delivery industry. However, SF's growth rate in 2021 was 17.38%, lower than that of YTO (31.29%), Yunda and Zhongtong.

With the prosperity of the e-commerce industry and the rise of self-media delivery, a large number of small and medium-sized logistics enterprises have risen rapidly. Due to their high price sensitivity and low requirements for timeliness, these companies are gradually attracting some customers. In the face of this trend, SF Express needs to further leverage its advantages in timeliness and service quality, provide tiered services for different customer groups, ensure that the core market is not eroded, and continue to increase its high-end market share.

As far as the express delivery market is concerned, its market share is concentrated in large-scale enterprises. In 2023, the market share of the three links and one reach will be more than 10%, surpassing that of SF Holding, and its market share will only be 9.06%, indicating that the market share of SF Holding needs to be improved.

Value chain cost management measures

1. Internal value chain cost management measures

(1) Adopt direct sales and outsourcing models to optimize the cost structure

SF Holding adopts a unique direct sales model for network layout and personnel management, ensuring the uniformity of service quality and standards. The headquarters directly manages the courier and logistics network, reducing the service instability and brand management risk caused by

franchise. However, due to the long management chain of the direct sales model, the overall operating cost is high.

In order to cope with this problem, SF Express has adopted a hybrid model combining direct sales and outsourcing across the country, outsourcing part of its business links (such as some distribution and warehousing links) to third-party suppliers. This not only effectively reduces labor costs and transportation costs, but also disperses operational risks. The combination of sales and outsourcing allows SF to retain absolute control in high-value links, while achieving cost reduction through outsourcing in low-value links, maximizing cost-effectiveness. This model is innovative in the logistics industry and provides a guarantee for SF's sustainable profitability.

(2) Open a convenience store to reduce delivery costs

SF has innovatively opened a "Heyke" convenience store in the community, turning it into a self-pickup point and micro-warehouse for terminal distribution, further optimizing the "last mile" delivery cost. Combined with SF's preferred platform, the "Heike" convenience store realizes free delivery within a small area (1.5 km), reduces the demand for long-distance transportation, and improves delivery timeliness and consumer satisfaction. In addition, the convenience store is seamlessly connected with SF's logistics system, so that goods can be transferred directly in the store without additional distribution, reducing the cost of intermediate links in the distribution process. This model has also brought new traffic entrances and profit opportunities to SF, reducing logistics costs and increasing market penetration.

(3) Self-built airlines reduce transportation costs

As early as 2009, SF Holding established SF Airlines, becoming the first logistics company in China to own its own cargo airline. By the end of 2023, SF Airlines has 86 cargo aircraft, with a total of 120 routes and 23,200 flights worldwide. The self-built airline provides SF Express with strong cross-regional transportation capacity, avoiding the high logistics costs and route restrictions of third-party airlines. In 2021, SF Express invested in the construction of Huahu Airport in Ezhou, Hubei Province, which is the first cargo hub airport in Asia. After completion, the airport will become the core hub of SF Express, greatly improving transportation efficiency, shortening delivery time, and further reducing air transportation costs. SF's own airline network enables SF Express to flexibly dispatch transportation capacity during peak logistics periods, improves the stability and anti-risk ability of the overall network, and strengthens SF's competitive barriers in the express delivery market.

2. External value chain cost management measures

(1) Strengthen supplier cooperation and jointly reduce costs

SF Holding is well aware of the impact of supply chain management on cost control, and has gradually reduced intermediate links and optimized the supply chain structure by establishing strategic partnerships with suppliers. In 2018, SF Express established a joint venture with the American cold chain giant Xia Hui, New Xia Hui, focusing on the cold chain logistics field to reduce the cost of fresh food and pharmaceutical logistics.

In 2019, SF Express cooperated with Fengshou Technology to build a supply chain fintech platform to improve the overall digitalization level of the supply chain, reduce inventory backlog, and improve the efficiency of capital flow. In September 2021, SF Express acquired a 51.8% stake

in Kerry Logistics Holding, leveraging Kerry Logistics' global network to accelerate the expansion of its international logistics business and optimize global supply chain costs. By integrating supply chain resources, SF Express has improved management efficiency and bargaining power while reducing the number of suppliers, and achieved in-depth optimization of the external value chain.

(2) Optimize the customer value chain and reduce marketing costs

SF continues to optimize its customer management system and improve customer stickiness through differentiated services, thereby reducing marketing costs. For different markets, SF Express adopts differentiated strategies: High-end market: Focus on timeliness and service quality, provide high-end customized services, and strengthen the direct sales model. Medium and low-end market: through the franchise layout of the sinking market, to provide cost-effective logistics services, to expand market coverage. In addition, during the epidemic, SF Express has established a good brand image by virtue of its rapid response to anti-epidemic needs and stable service quality. Consumers' word-of-mouth communication has effectively reduced marketing and promotion costs, and increased SF's market share and customer loyalty.

SF value chain management analysis

1. Financial performance analysis

(1) Operating income has increased

In recent years, SF Holding has maintained a stable revenue growth trend. According to the financial data of 2021-2023, the operating income of SF Holding increased from 207.187 billion yuan to 25840.9 billion yuan. In particular, in 2021, SF's operating income increased by 34.55% year-on-year, showing strong market performance and competitiveness. As the core business of SF, the time-sensitive express business grew steadily, and the revenue of time-sensitive express increased by 7.27% year-on-year in 2021. Although the demand for epidemic prevention materials and emergency delivery increased significantly during the epidemic in 2020, SF maintained stable growth in 2021 against the background of a high base, indicating SF's strong competitiveness in the mid-to-high-end express delivery market. In addition, supply chain and logistics services have grown substantially, and the supply chain and logistics business is the second growth curve that SF has focused on in recent years. In 2021, the revenue of this segment increased by 199.80% year-on-year, making it the fastest growing revenue of SF.

(2) Optimization of operating costs

Although SF Holding' operating income far exceeds that of its peers, its operating costs are also high. In 2023, SF's operating costs will reach 25.0551 million yuan. In addition, compared with their peers, the operating costs of leading logistics companies such as Yunda are generally higher. For example, in 2023, Yunda's operating cost will be as high as 43.133 million yuan. This shows that high operating costs are a common phenomenon in the logistics industry, and SF Express has significantly reduced cost pressure through refined management and cost optimization. As a result, cost control has been effective. SF's lower cost share is due to the continuous optimization of big data technology and network layout. By strengthening the informatization construction and intelligent dispatching system, SF has improved transportation efficiency, reduced the no-load rate, and effectively controlled logistics operating costs. In addition, SF Express has built its own aviation and warehousing system, which reduces its dependence on external transportation and

warehousing, which not only improves logistics speed, but also reduces external supplier expenses and long-term logistics costs. SF's successful experience shows that digital transformation and supply chain optimization are the key paths for logistics companies to reduce costs and enhance competitiveness.

2. Non-financial performance analysis

(1) The process of internationalization is accelerating

In 2021, SF Holding continued to accelerate the pace of internationalization and achieved significant growth in its overseas business. Relying on its self-built aviation network and digital technology, SF Express continues to expand the global market and accelerate the layout of its supply chain and international business.

In 2021, the supply chain and international business segment achieved operating income of RMB39.2 billion, a year-on-year increase of 199.80%, making it the fastest-growing business segment of SF Holding. SF Express is transforming from a traditional express delivery business to an integrated logistics service provider, and is involved in warehousing, supply chain management, international freight forwarding and other fields, gradually realizing the full-chain layout. This strategic transformation effectively reduces the dependence on a single business, and enhances the ability to resist risks and market competitiveness. For example, in 2021, SF Holding joined hands with Kerry Logistics to further strengthen the coverage of the international logistics network and enhance the capacity of cross-border e-commerce and international freight transportation. In addition, SF Express has been deepening its presence in emerging markets such as Southeast Asia, making full use of the global route resources of Ezhou Huahu Airport, an aviation hub, to establish an international express and cargo hub and enhance its global cargo capacity.

(2) Customer satisfaction increases

SF Holding has won high recognition from consumers with its high-quality service quality and brand image, and has maintained high customer satisfaction and loyalty in the domestic express delivery market. In the State Post Bureau's express service satisfaction survey for the third quarter of 2024, in terms of brand public satisfaction, the brands with higher scores are SF Express and JD Express.

Problems and countermeasures

1. Questions

(1) Unstable supplier cooperation

The cooperation between SF Express and suppliers is mainly based on contractual relationships, the depth of cooperation is limited, and there is a lack of stable strategic connection, which makes cost control more difficult. According to the data, SF's top two suppliers accounted for 4.50% and 2.71% of the procurement respectively, and the dependence on a single supplier is low, which reflects the instability of the supply chain to a certain extent. If the market environment or raw material prices fluctuate, the stability of the supply chain may be affected.

(2) Insufficient customer loyalty

Insufficient customer loyalty and limited market share In 2021, SF's top five customers accounted for only 5.57% of sales, of which the largest customer contribution was 2.39%, indicating that SF's

customer resources were scattered and customer stickiness was insufficient. Due to SF's relatively high pricing, which is mainly aimed at the mid-to-high-end market, it has limited appeal to customers with high price sensitivity, and is easy to be replaced by low-cost competitors such as "Four Links and One Access".

(3) Intense market competition

The market competition is fierce, the pressure on the industry is increasing, and the express delivery industry market is growing rapidly, and the total volume of express delivery business in 2021 will increase by nearly 30% year-on-year. However, the business growth rate of Zhongtong and YTO was 31.18% and 30.79% respectively, exceeding SF's 29.46%, and the growth rate of SF's market was slightly lower than the industry average. SF's business volume is less than half of that of ZTO, and its market share is facing challenges.

(4) High pressure on cost control

In recent years, SF Holding has continued to expand its business scale and invested heavily in building logistics infrastructure and aviation networks. However, in the context of heightened global economic uncertainty and price wars in the domestic logistics industry, high operating costs have compressed profit margins. SF Express has cost management problems in transportation, warehousing, distribution and other links, especially the fixed costs of air transportation remain high. From 2019 to 2021, SF's outsourcing costs continued to grow, reaching RMB107.455 billion in 2021, accounting for 59.19% of operating costs. While the outsourcing model improves operational flexibility, excessive reliance on outsourcing can lead to problems such as insufficient bargaining power and increased hidden costs of suppliers. Poor outsourcing management can lead to a decrease in service quality, affecting customer satisfaction and corporate brand image.

(5) The integration of informatization and digitalization is insufficient

Although SF Express has made some progress in the field of intelligent logistics, there is still room for improvement in the overall level of informatization. For example, in order management, warehousing scheduling and customer feedback, the phenomenon of data islands is more obvious, and a highly integrated logistics data platform has not been formed, which limits the comprehensive monitoring and optimization of the logistics chain.

2. Measures

(1) Establish a diversified supply chain system

SF Express needs to establish a diversified supply chain system, increase the reserve of high-quality suppliers, form a supplier database and improve the evaluation system. Through the establishment of supplier access threshold and rating system, the supplier is dynamically managed to ensure the quality and reputation of the partner. Regularly inspect supplier qualifications, strengthen information sharing, promote the formation of strategic partnerships, and reduce risks caused by supplier changes. In addition, financial monitoring mechanisms can be introduced to enhance the transparency of supply chain costs and ensure that costs are controllable.

(2) Dig deep into customer needs

SF Express needs to dig deep into customer needs, collect customer feedback through online and offline channels, and use big data to analyze consumer preferences to achieve personalized services

and improve customer experience. Improve the after-sales service system, formulate differentiated service plans for different customer groups, and improve customer satisfaction. SF Express can use the self-media platform to increase brand promotion, enhance market awareness, and expand the potential customer base. In addition, SF Express can rely on its own brand advantages to penetrate into the high-end market, provide exclusive logistics solutions such as luxury goods and high-end electronic products, continue its high-end brand positioning, and increase market share and customer stickiness.

(3) Pay close attention to the dynamics of its main competitors

SF Express needs to pay close attention to the dynamics of its main competitors, analyze the market strategies and innovation measures of Zhongtong, YTO and other enterprises, learn from each other's strengths, and adjust its own development direction. SF Express can expand its e-commerce field and increase investment in emerging businesses such as cross-border e-commerce and fresh cold chain logistics to form a differentiated competitive advantage. In addition, SF should strengthen its air, land transportation and intelligent logistics network layout, improve the efficiency of the whole chain logistics, continue to consolidate its advantages in timeliness and service quality, and avoid reactive response in price competition.

(4) Strengthen cost management and refined operation

SF Express needs to further optimize resource allocation and implement refined cost control strategies. In terms of air transportation, the cost of single ticket transportation can be reduced by optimizing the route layout and improving the freight loading rate. At the same time, it will strengthen the integration of regional logistics centers, rationally plan transportation routes, and improve overall operational efficiency. Establish a hierarchical training mechanism for different positions, and carry out regular professional skills training around smart logistics operation, data analysis, equipment maintenance and customer management. Introduce external training institutions or experts, combined with actual cases of enterprises, to improve the practical ability and theoretical level of employees. Implement the online and offline hybrid training model, monitor the training effect in real time with the help of the big data platform, and optimize the training program.

(5) Accelerate informatization and digital transformation

Promote the informatization upgrade of the whole chain, build an intelligent logistics system, and realize the comprehensive interconnection of order management, warehousing scheduling, and transportation monitoring. Predict market demand through big data analysis and improve the accuracy of warehousing and distribution. We can learn from the intelligent warehousing experience of enterprises such as JD.com, introduce artificial intelligence and Internet of Things technology, and improve the level of automation.

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