Teachers' Beliefs in Education for Sustainable Development and Senior Students' Green Entrepreneurial Intentions in Xinjiang Autonomous Region, China: The Moderating Effect of Teachers' Legacy Motivation and Digital Competence

Li Lei, Zhang Ke, Xiang Fangyu

[**Abstract**] Teachers' beliefs are the main factors that promote students' growth, and are related to students' green entrepreneurship. Therefore, using 283 paired samples of teachers and senior students from 12 higher vocational schools in Xinjiang Autonomous Region, China, the relationship between teachers' beliefs in education for sustainable development and vocational students' green entrepreneurial intentions, as well as the facilitating effects of teachers' legacy motivation and digital competence, were investigated. The results confirm for the first time that teachers' sustainability beliefs are positively related to senior students' green entrepreneurial intentions in Xinjiang Autonomous Region of China, that there is no facilitating effect of teachers' legacy motivation, and that there is a facilitating effect of teachers' digital competence. This suggests that senior students in Xinjiang Autonomous Region of China need not only teachers' sustainability beliefs but also the combination with teachers' overall competence to adequately facilitate the development of their green entrepreneurial intentions.

[**Key words**] teachers' beliefs in education for sustainable development; legacy motivation; digital competence; green entrepreneurial intentions

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[**DOI**] https://doi.org/10.62662/kxwxy0110001

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1 Introduction

Gupta et al. (2023), Holzmann and Gregori (2023), and Sreenivasan and Suresh (2023) suggest that with economic and social development, people are beginning to pay more attention to environmental issues. Furthermore, Emon and Khan (2023), Huang et al. (2023) and Vig (2023) argue that green entrepreneurship, which integrates the concepts of both ecological and business entrepreneurship, ensures that economic prosperity is promoted while protecting the environment. Chang et al. (2022), Ivanovici and Baber (2022), and Watson (2023) emphasize that green entrepreneurship is a novel, technically demanding, and high-risk form of entrepreneurship. Therefore, college students with higher education levels and innovation abilities are more inclined to choose green entrepreneurship. Fu et al. (2023) argue that although China has always attached importance to green entrepreneurship among senior students and has launched a series of supportive policies, the percentage of

senior students who choose green entrepreneurship is less than 1% of graduates. Therefore, it is necessary to promote the formation of senior students' green entrepreneurial intentions.

Goller and Rieckmann (2022), Malik et al. (2023), and Munkebye and Gericke (2022) suggest that in recent years, many countries have been embarking on dramatic educational reforms in the hope of transforming the existing educational landscape and assisting students in developing the knowledge, skills, and values required for green development. Thus, Baroudi (2023), Fischer et al. (2022), and Lohmann and Goller (2022) point out that the importance of green development is evident in the fact that it has become a commonly pursued concept. In addition, Castellanos and Dios (2022), Yuan et al. (2022), and Zong (2022) suggest that green development education is also at the forefront of education reform in China. Meanwhile, Isac et al. (2022), Li and Tsai (2022), and Lohmann and Goller (2023) emphasize that green education aims to guide students to pay attention to the environmental problems they face and to correctly understand the interdependent relationship between individuals, society and nature; to help students acquire the knowledge and skills needed to live harmoniously with the environment, and to develop feelings, attitudes and values that are beneficial to the environment; to encourage students to take an active part in decision-making and action towards sustainable development, and to become socially competent and responsible citizens. At the same time, Castellanos and Dios (2022), Pauw et al. (2022), and Sabarwal et al. (2022) point out that the achievement of these goals involves implementation issues in the curriculum and educational reform. In addition, O'Grady (2023), Saleem et al. (2023), and Soysal and Ok (2023) argue that, in fact, in many countries, problems have been revealed in the implementation of the new curriculum. Thus, Olsson et al. (2022), Gericke and Torbjörnsson (2022), and Vukeliĉ (2023) point out that in curriculum implementation research, where strategies are implemented "top-down", this requires that teachers' practices are aligned with policy requirements, which does not leave much room for teachers to maneuver. Therefore, Fröberg and Lundvall (2022), Hogan and O'Flaherty (2022), and Kioupi and Voulvoulis (2022) argue that this strategy assumes that curriculum reform is a set of established procedures, which contributes to the dilemma of curriculum reform. On the other hand, Du et al. (2022), Rieckmann and Barth (2022), and Stouthart et al. (2023) find through previous practice and research that teachers' beliefs play a very important role in curriculum implementation. Therefore, Rauwald and Moore (2002) define this teacher's philosophy of sustainability education as an orientation towards environmental values. On the other hand, Acuña et al. (2023), Ead et al. (2022), and Roy (2023) suggest that people are becoming ecologically conscious, the concept of sustainability is increasing, and the demand for green products and services is growing. Elsawalhy and Elzek (2023), Ma (2022), and Nuringsih and Nuryasman (2022) attribute this to the fact that more green businesses need to be involved in ecological preservation to cope with challenges such as global warming. Thus, Ivanovici and Baber (2022), Mishra and Sharma (2023), and Santika et al. (2022) state that there is an urgent need for society to involve more entrepreneurs in green entrepreneurship by seeking sustainable initiatives that reduce the impact on the environment and help to improve the ecosystem, and balance economic and environmental benefits. Thus, Andruk and Altinay (2022), Purwati et al. (2022), and Speckemeier and Tsivrikos (2022) emphasize that there is an urgent need for more entrepreneurs to implement green development-oriented green entrepreneurship to promote simultaneous economic development and green transformation. In this regard, Genoveva and Tanardi (2022), Shahid and Reynaud (2022), and Yuniarti (2023) argue that senior students are highly knowledgeable and environmentally conscious, and are the force behind the creation of green businesses. Therefore, it is important to explore the formation mechanism of green entrepreneurial intentions of senior students. On the other hand, Ismail et al.'s (2018) study shows that teachers' beliefs are positively related to students' entrepreneurial behaviors. Cai (2022), Panula et al. (2022), and Simó and Kriewaldt (2023) argue that this is because green development education is based on critical environmental competence, constructed ecology, lifelong

learning, and the development of a learning society is based on an awareness of deep structures. At the same time, Fernández et al. (2023), Felix and Critical (2023), and Öztürk and Levy (2022) emphasize that the beliefs of teachers become particularly important in the implementation of green development education. However, the relationship between teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions in China has never been explored.

On the other hand, what may be able to facilitate senior students' green entrepreneurial intentions is teachers' legacy motivation. Wang et al. (2020) suggest that individuals are accompanied by the imminence of physical demise from the very beginning of their birth and that almost everyone seeks spiritual immortality and expects to be still remembered in the future. Moreover, Zaval et al. (2015) also refer this expectation of being remembered as the inheritance motive. Thus, Fox and Benzoni (2017) describe it as the desire to have oneself and the objects, events, personalities, spirituality, values, etc., associated with oneself to be passed on and remembered by future generations. Furthermore, Wang et al. (2020) argue that the thought of transmission can be seen everywhere in everyday life, for illustration, from the construction of ancestral shrines and genealogies to the writing of books and novels, etc. Price et al. (2000) argue that these instances also show that the mentality of transmission is non-peculiar to a few but a necessity that is common to all people. In addition, Price et al. (2020) argue that it also shows that there are many other ways in which people can realize their heritage other than through significant contributions to society such as great achievements, simply by passing on objects, values, or life stories to future generations. At the same time, Belk (2013) emphasizes that virtually anything that represents the valuable and abstract self can be a vehicle for self-inheritance. Thus, Hunter and Rowles (2005) state that the inheritance mentality is a widespread motivation among people. Benzoni (2019) argues that the legacy motivation represents the individual's achievement of the immortality of the self in an abstract sense, and therefore it can have a profound effect on human behaviors. However, Benzoni et al. (2017), Benzoni (2019), and Waggoner et al. (2023) argue that previous research on legacy motivation has only been explored in intergenerational resource allocation and organizational contexts. In addition, Fox and Benzoni's (2017) study finds that legacy motivation is related to entrepreneurial behaviors. What's more, Zhao and Li's (2021) study finds that faculty transmission motivation has a facilitating effect between nursing students' integrative wisdom and soft skills. Wang et al. (2020) emphasize that, apart from this, there is still a paucity of research on the facilitating effect of legacy motivation on behaviors. Therefore, this study will explore the relationship between teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions, and the facilitating effect of teachers' legacy motivation in Xinjiang, China.

In addition, what might further enhance the green entrepreneurial intentions of senior students is teachers' digital competence. Driven by innovation and technological evolution, Åberg et al. (2022), ElSayary (2023), and Cervera and Caena (2022) argue that digital transformation is reshaping the future of education and that learners are equipped with digital competencies that help them to work, learn and develop. Meanwhile, Almenara et al. (2020), Gümüş and Kukul (2023), and Reisoğlu (2022) also emphasize the need to significantly enhance teachers' digital competence and to promote them to proactively adapt to the changes of new technologies such as AI, so that they can teach actively and effectively. In addition, Peters et al. (2022), Trindade (2022), and Tondeur et al. (2023) point out that educational institutions around the globe are calling for the enhancement of pedagogical competence development of teachers, and that the deeper integration of information technology and education is an inevitable trend for teachers to deepen their educational development in the digital era. Meanwhile, Howard and Tondeur (2023), Tang et al. (2022), and García et al. (2023) also emphasize that these policies have keenly captured the trend of educational change in the digital era. Thus, Wu et al. (2021) define teachers' digital competence as a comprehensive competence that teachers demonstrate in the digital era. Meanwhile, Ergül

and Taşar (2023), Jogezai et al. (2023), and Wang and Chu (2023) state that teachers' digital competence determines the height of sustainable development and that the development of a new type of digitally competent teachers has become an important issue in modern times. Furthermore, Luyo et al.'s (2022) study finds that teachers' digital competence is a determinant of students' entrepreneurial behaviors. Meanwhile, Feng et al.'s (2022) study finds that teachers' beliefs can effectively promote students' development indirectly through digital competence. However, Akça (2019), Awotunde and Westhuizen (2020) emphasize that apart from that, there is still a paucity of research on the facilitating effect of teachers' digital competence on students' entrepreneurial intentions. In addition, whether teachers' digital competence in Xinjiang, China can facilitate the relationship between teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions has never been explored.

On the other hand, various forms of student entrepreneurship teams have been set up in various higher vocational schools in Xinjiang, China. As one of the strategic economic development regions, Xinjiang has introduced many preferential policies to support entrepreneurship, supporting and encouraging senior students' entrepreneurship. Wu et al. (2022), Yang (2022), and Ye (2022) point out that this has brought the entrepreneurship of senior students in Xinjiang an unprecedented historic opportunity, especially the difficulties in terms of capital and publicity have been alleviated with the support of relevant preferential policies. Meanwhile, Zhang (2022) emphasizes that the early stage of entrepreneurship is the most difficult period, and entrepreneurial preferential policies can help Xinjiang students pass the difficult period of entrepreneurship to a certain extent. In addition, Liu and Ma (2018) point out that at present, students in Xinjiang can enjoy preferential policies for entrepreneurship and ethnic minorities in the process of entrepreneurship, including the availability of free entrepreneurship training, risk assessment, and gratuitous loan guarantees. In addition, Pei and Wang (2017), Liu (2017), and Wusiman et al. (2020) suggest that the introduction of preferential policies in the Xinjiang region can better help students' entrepreneurship. In addition, Tang and Wang (2017) argue that Xinjiang has a large number of ethnic groups with diversified culture, songs, dances, cuisines, and other ethnic characteristics. Tang and Wang (2017) point out that today, as the development of the cultural industry is receiving more and more attention, the diversified culture is not only a feature of entrepreneurship for college students of ethnic minority, but also an extremely important resource. On the other hand, Cao et al. (2021) and Li (2021) argue that the "Belt and Road Initiative" better promotes inter-regional economic cooperation between Xinjiang and its neighboring countries, which provides good conditions for Xinjiang students to develop business cooperation with neighboring countries. Li (2021) points out that, in this context, the cultural resources possessed by Xinjiang students are the most important and are a major advantage in their entrepreneurial endeavors. At the same time, Wang (2021) argues that in Xinjiang, the modernization of industries and the development of the service sector are low. Many industries that are saturated in the eastern coastal regions are in their infancy in Xinjiang, which provides entrepreneurial opportunities for students to start their businesses in Xinjiang. Meanwhile, Liu et al. (2022) emphasize that the ethnic groups in Xinjiang have a greater demand for products and services designed based on ethnic languages, cultures, and traditional practices. Therefore, in the process of entrepreneurship, higher education students in Xinjiang can better utilize and develop the consumer markets of the eight neighboring Central and South Asian countries. In addition, Xue et al. (2022) and Wang et al. (2021) suggest that Central and South Asian countries have a weak industrialization base, a more homogeneous economic structure, insufficient production capacity, and a greater demand for a variety of resources, which provides a broad potential market for green entrepreneurship of senior students in Xinjiang region. Furthermore, Li and Sun (2021) and Shi and Wang (2021) argue that the "Belt and Road Initiative" is an important development opportunity for Xinjiang and that it is easier for Xinjiang senior students to integrate into Central Asia in terms of language, culture and other aspects of

entrepreneurship. This has pointed out the direction, provided policy support, created a favorable environment, and created new development opportunities for the green entrepreneurship of senior students in Xinjiang.

Therefore, the purpose of this study is to investigate the relationship between teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions in higher vocational schools in Xinjiang, China, as well as the facilitating effects of teachers' legacy motivation and digital competence, to reveal the antecedents and facilitating mechanisms affecting senior students' green entrepreneurial intentions in Xinjiang, China. This serves to identify the antecedents and pathways that influence senior students' green entrepreneurial activities in Xinjiang, China, which is important for promoting local eco-entrepreneurship in the future.

2 Literature review

2.1 Teachers' beliefs in education for sustainable development

Yang (2008) suggests that teachers' beliefs in education for sustainable development mean that teachers include a system of values based on the relationship between human beings and society, the environment, and the economy, as well as the process of education and learning. It contains the view of values, i. e., the values of sustainable development based on pluralistic environmental values; and the view of education based on the ecological paradigm, i. e., the view of education for sustainable development. Firstly, the concept of sustainable development is value-loaded, and therefore the content of education for sustainable development is also value-loaded. Sustainable development values are based on environmental values, and there are different categories of environmental values from different perspectives. Environmental values include anthropocentric-ecocentric values, dominant environmental paradigm-new environmental paradigm values, and technocentric-anthropocentric values. These environmental value systems constitute the weak-strong paradigm of sustainable development. Strong-mode sustainable development values refer to ecocentric new environmental paradigms, and dark green and red-green-based value systems; weak-mode sustainable development values refer to anthropocentric dominant environmental paradigms, and non-green and light green-based value systems.

Furthermore, Sterling and Orr (2001) argue that education should be viewed from an ecological perspective, and they argue that the postmodern, holistic philosophy-based, and ecological view paradigm teachers' beliefs in education for sustainable development differ from the traditional and mechanical paradigm in three levels: (1) core values; (2) curriculum, evaluation and assessment, management, and community; (3) teaching and learning perspectives, learner perspectives, and teaching and learning styles.

2.2 Green entrepreneurial intentions

Schaltegger (2002) argues that green entrepreneurship has a broad and a narrow meaning: in the narrow sense, it refers to the establishment of innovative firms that supply ecologically sound products or services to the market; and in the broad sense, it refers to the entrepreneurs who open up the market and create value through green innovations or products. Meanwhile, Gast et al. (2017) argue that green entrepreneurship is a process of identifying, evaluating, and seizing entrepreneurial opportunities. Thus, Guo et al. (2017) describe green entrepreneurial intentions as an individual's subjective attitude towards whether or not to undertake green entrepreneurship. Similarly, Wang and Li (2017) describe green entrepreneurial intentions as an individual's subjective attitude towards selecting green entrepreneurial behaviors. Besides, according to Liang and Zhang's (2021) definition, it is the subjective attitude and ability of potential entrepreneurs towards performing green entrepreneurship.

2.3 Teachers' legacy motivation

According to Zaval et al. (2015), legacy motivation refers to a psychology in which an individual wishes to leave his or her mark and be remembered by others for a long time. Benzoni (2019) points out that it confers a long-lasting value to the self-identity in the temporal dimension and symbolizes the desire for the self-identity to

last for a long time. In addition, Bang et al. (2017) and Eury et al. (2018) suggest that all content objects that can represent valuable and abstract selves can be carriers of inheritance, which includes both tangible possessions and intangible contents such as memories, spirits, and values. In the field of education, Zhao and Li (2021) define teachers' legacy motivation as the psychology that teachers expect to be remembered permanently, which is conducive to the growth of line, perception, and creativity. On the other hand, Wang et al. (2020) point out that existing research on legacy motivation focuses on cross-generational decision-making and organizational contexts. For example, Benzoni (2019), and Zaval et al. (2015) find in cross-generational decision-making studies that legacy motivation would motivate individuals to allocate more resources to others than to themselves and would motivate individuals to engage in environmentally friendly behaviors for the sake of the survival of future generations. In addition, Fox and Benzoni's (2017) study finds that legacy motivation is an antecedent for individuals to engage in entrepreneurial behaviors. On the other hand, Zhao and Li's (2021) study also finds that teachers' legacy motivation has a facilitating effect on students' integrative wisdom and soft skills.

2.4 Teachers' digital competence

Gilster (1997) describes digital competence as the combined ability to access, understand, critique, and integrate information, and he emphasizes that the acquisition of digital skills and understanding of digital technologies have become new competencies for people in the digital era. Furthermore, Wang et al. (2013) define digital competence as an ability to confidently and critically utilize information society technologies in work and communication. Similarly, Hatlevik et al. (2018) argue that teachers' digital competence is a collection of perceptions, knowledge, skills, and abilities that they have to use ICT technologies to solve educational problems, while the specific connotations evolving with stages. Moreover, Wu et al. (2021) also define teachers' digital competence as a comprehensive ability that educators embody in the digital era.

Feng et al. (2022) point out that early studies focus on the technical nature of digital competence, focusing on teachers' proficiency in the use of electronic devices and digital resources. These studies often lack contextual authenticity, and consideration of different socio-cultural environments, and tend to use definitions of digital competence of ordinary citizens, making it difficult to highlight the special status of teachers. In response to these limitations, subsequent studies have considered more broadly, incorporating richer elements such as ethics, digital citizenship, health, wellbeing, safety, and social collaboration, and have paid more attention to teachers' identities, incorporating elements such as pedagogy and curriculum into competency frameworks, such as the Dig Comp Edu framework, which emphasizes teachers' role as a facilitator of competencies for learners, and the ISTE framework, which emphasizes teachers' role as role models and leaders for students.

It can be seen that early definitions of teachers' digital competence center on technology, teaching, management, and professional development, while later on they develop into a multifaceted structure, gradually introducing dimensions that focus on information sharing, individual creativity, and civic engagement in the digital space, and the promotion of the development of learners' digital competence.

2.5 Teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions

Wang and Li (2017) describe green entrepreneurial intentions as an individual's subjective attitude toward selecting green entrepreneurial behaviors. Rauwald and Moore (2002), on the other hand, define teachers' beliefs in education for sustainable development as an orientation towards environmental values. Ismail et al.'s (2018) study suggests that teachers' beliefs are positively related to students' entrepreneurial behaviors. This is because teachers' orientation towards environmental values enables students to acquire more ecological knowledge and skills, which increases their positive attitudes towards green entrepreneurship and can activate the potential actions of senior students' green entrepreneurship. Therefore the hypothesis:

H1: Teachers' beliefs in education for sustainable development positively affect senior students' green entrepreneurial intentions.

2.6 The moderator role played by legacy motivation

Zhao and Li (2021) describe teachers' legacy motivation as the psychology that teachers expect to be remembered permanently, which facilitates the growth of line, perceptions, and creativity. Fox and Benzoni's (2017) study finds that legacy motivation is related to entrepreneurial behaviors. In addition, Zhao and Li's (2021) study also finds that teachers' legacy motivation has a facilitating effect on students' integrative wisdom and soft skills. Fox and Benzoni (2017) argue that this is due to the legacy motivation that an individual possesses, the hope to achieve the immortality of the self in the abstract sense, and therefore it will have a positive effect on making the teacher maximize their transfer of knowledge and skills to students. The interaction between teachers' beliefs in sustainable education and legacy motivation can fully stimulate teachers' motivation to teach, which will stimulate students' enthusiasm and skills, strengthen their confidence in entrepreneurship, and ultimately further enhance senior students' green entrepreneurial intentions. Therefore the hypothesis:

H2: Teachers' legacy motivation has a positive moderating effect between beliefs in education for sustainable development and senior students' green entrepreneurial intentions.

2.7 The moderator role played by digital competence

Wu et al. (2021) define teachers' digital competence as a comprehensive competence. Luyo et al.'s (2022) study finds that teachers' digital competence is a determinant of students' entrepreneurial behavior. In addition, Feng et al.'s (2022) study also finds that teachers' beliefs can effectively contribute to students' development indirectly through digital competence. Demissie et al. (2022), Jogezai and Baloch (2023), and Masoumi and Noroozi (2023) argue that this is because teachers' mastery of modern integrative competencies can increase their ability to deliver lessons, as well as make students more acquisitive of knowledge and skills, and also enhance students' analytical skills. The interaction between teachers' beliefs in education for sustainable development and digital competencies can sufficiently enhance teachers' motivation to educate, strengthen teachers' concepts of sustainability, and stimulate students' passion to engage in sustainability, which will ultimately further enhance senior students' green entrepreneurial intentions. Therefore the hypothesis:

H3: Teachers' digital competence has a positive moderating effect between beliefs in education for sustainable development and senior students' green entrepreneurial intentions.

3 Methodology

3.1 Research framework

Construct the framework based on the assumptions, as shown in Figure 1 below:

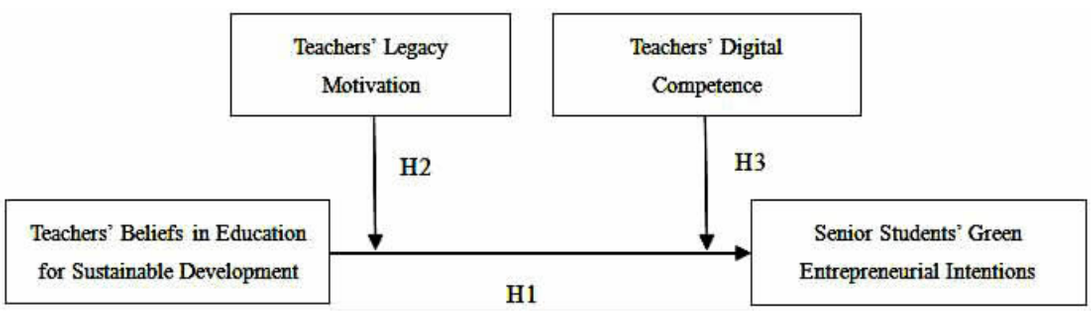

Figure 1. Depiction of the study's framework

3.2 Samples and procedures

The survey was conducted in September 2023, with purposive sampling and matching. Teachers and students from 8 senior vocational schools in Xinjiang, China were selected as samples. An electronic questionnaire was used

to investigate their views on teachers' beliefs in education for sustainable development, legacy motivation, digital competence, and senior students' green entrepreneurial intentions. The final valid sample is 283 (validity rate 93.33%). About 69.96% of the total number in the sample is male, while about 30.04% is female; about 27.91% of the total number of teachers is male, while about 72.09% is female.

3.3 Measures

Teachers' beliefs in education for sustainable development scale: drawing on Yang's (2008) theoretical design, 3 factors with 10 items (SRMR=0.05).

Legacy motivation scale: designed by Zhao and Li (2021), single factor with 4 items (α=0.943).

Digital competence scale: drawing on He's (2021) instrument design, 8 factors with 38 items (SRMR = 0.04).

Senior students' green entrepreneurial intentions scale: designed by Zhang and Xu (2023), single factor with 4 items (α=0.836).

The questionnaire was measured on a 5-equal scale with gender as a demographic variable.

4 Results

4.1 Model fit

The overall model has an SRMR=0.04, which is a good match (as shown in Table 1).

Table 1. Root mean square error

	Initial sample	Mean	95%	99%
Saturated model	0.04	0.031	0.035	0.036
Estimated model	0.04	0.031	0.035	0.036

Note: n=283.

4.2 Correlation analysis

The correlation matrix (as shown in Table 2) shows that teachers' beliefs in education for sustainable development are positively correlated with senior students' green entrepreneurial intentions (β=0.352 ***, p< 0.001), and hypothesis H1 is valid.

Table 2. Narrative and correlation coefficient matrix

Variables	M	SD	1	2	3	4
1. Teachers' beliefs in education for sustainable development	3.823	0.723	0.759			
2. Teachers' legacy motivation	3.658	1.065	0.462 ***	0.750		
3. Teachers' digital competence	3.651	0.888	0.162 **	0.062	0.710	
4. Senior students' green entrepreneurial intentions	3.696	0.884	0.352 ***	0.418 ***	0.231 ***	0.775
α			0.873	0.890	0.855	0.819
CR			0.875	0.836	0.857	0.791
AVE			0.576	0.562	0.505	0.601

Note: * =p<0.05.

4.3 Regulation analysis

Regulation analysis (as shown in Table 3) shows that the interaction between teachers' beliefs in education for sustainable development and legacy motivation is significant (β=0.065), indicating that teachers' legacy motivation cannot promote the relationship between beliefs in education for sustainable development and senior

students' green entrepreneurial intentions, and hypothesis H2 is not valid. In addition, the interaction between teachers' beliefs in education for sustainable development and digital competence is significant ($\beta = 0.241$ ***, $p < 0.001$), indicating that teachers' digital competence promotes the relationship between beliefs in education for sustainable development and senior students' green entrepreneurial intentions, and hypothesis H3 is valid.

Table 3. Regulation analysis

	Senior students' green entrepreneurial intentions					
	M1	M2	M3	M4	M5	M6
Gender	−0.037	−0.029	−0.028	−0.037	−0.025	−0.051
Teachers' beliefs in education for sustainable development	0.417 ***	0.385 ***	0.394 ***	0.417 ***	0.303 ***	0.315 ***
Legacy motivation		0.145 ***	0.143 ***			
Teachers' beliefs in education for sustainable development × legacy motivation			0.065			
Digital competence					0.138 ***	0.146 ***
Teachers' beliefs in education for sustainable development × digital competence						0.241 ***
R^2	0.178	0.194	0.212	0.178	0.136	0.194
Adj R^2	0.176	0.192	0.209	0.176	0.134	0.191
F	88.564 ***	53.736 ***	8.136	88.564 ***	55.601 ***	56.503 ***
DW			2.35			1.98

Note: * = $p<0.05$.

5 Discussion

5.1 Discussion and conclusion

The results of the study confirm for the first time that there is a positive relationship between teachers' beliefs in education for sustainable development and senior students' green entrepreneurial intentions in Xinjiang, China. Thus, it can be shown that teachers' beliefs occupy a pivotal position in the implementation of education for sustainable development, which is reflected in China's practice of education reform. However, in today's curriculum reform, education for sustainable development emphasizes the breaking down of traditional teaching-learning relationships and promotes a view of education based on an ecological paradigm. This involves not only value issues related to social justice and environmental protection but also changes in the structure of education and teaching-learning relationships. Therefore, the study of education for sustainable development has a certain pioneering significance for the whole education reform. In addition, there are already some sustainable development education practices in China, such as green schools and green education initiatives. These learning activities all contain the practice of the concept of education for sustainable development, which effectively develops teachers' beliefs. They also promote the deep development of education for sustainable development in China.

The results of the study show that teachers' legacy motivation cannot promote the influence of beliefs in education for sustainable development on senior students' green entrepreneurial intentions in Xinjiang, China. This is unexpected. However, Wang et al. (2020) point out that legacy motivation weakens individuals' risk preferences, and green entrepreneurship is risky. Therefore, legacy motivation inversely inhibits the formation of

senior students' green entrepreneurial intentions in Xinjiang, China.

The findings confirm for the first time that teachers' digital competence can contribute to the relationship between beliefs in education for sustainable development and senior students' green entrepreneurial intentions in Xinjiang, China. Therefore, the development of teachers' digital competence is particularly important in the digital era. At the practical level, leaders of Xinjiang higher vocational schools also need to create an open and fault-tolerant school climate, advocate student-centered education concepts as well as establish a long-term development system and incentives for teachers' digital competence to facilitate the digitalization process in higher vocational schools.

5.2 Research contributions

By constructing a cross-level model between teachers and students, this study confirms the influence of teachers' beliefs in education for sustainable development on senior students' green entrepreneurial intentions and also confirms the facilitating role of teachers' digital competence. This not only fills in the research on the impact of teachers' beliefs in education for sustainable development on senior students' green entrepreneurial intentions but also expands the intermediate path between the two, which is a groundbreaking contribution to empirical research on green entrepreneurship.

5.3 Research implications

The findings of this study are instructive for promoting the formation and practice of green entrepreneurial intentions among senior students in Xinjiang, China.

Firstly, at the individual level, studying green entrepreneurship courses can enable students to acquire the knowledge and skills needed to start a green business, and motivate their interest and enthusiasm for green entrepreneurship. In addition, in the green entrepreneurship practice activities, senior vocational students can gain experience by experiencing the process of green entrepreneurship, which helps to enhance their confidence and feasibility of green entrepreneurship.

Secondly, at the school level, great attention should be paid to the digital competence of teachers who play an important role in green entrepreneurship. It is suggested that the concept of environmental values for teachers should be included in the system of continuing professional development for teachers so that vocational students can not only acquire relevant knowledge and skills but also further enhance their green entrepreneurial intentions after receiving green entrepreneurship education.

Thirdly, after using green entrepreneurship lectures, online learning communities, and other activities to educate teachers on the concept of sustainable development, senior students should also be allowed to practice through green entrepreneurship practice competitions, which transforms theories into practical operations, thus further guiding their green entrepreneurship practices.

Fourthly, at the country and the government level, certain attention should be paid to strengthen the stimulation of senior students' green entrepreneurial intentions under the background of promoting the development mode for green transformation. The country and the government should be targeted at Xinjiang senior students to introduce a more powerful green entrepreneurship policy, provide incentives to the relevant practical activities, and then enhance senior students' green entrepreneurial intentions, which can make senior students actively respond to the green development concept and carry out green entrepreneurship, and strongly guide senior students' green entrepreneurial practice concept for carrying out green entrepreneurship, thus strongly promoting the sustainable development of China's Xinjiang region.

Fifthly, although teachers' legacy motivation cannot promote the enhancement of risky senior students' green entrepreneurial intentions, it can be applied to situations where individuals or organizations need to be warned of the risks involved in making financial investment decisions. The legacy mentality of decision-makers can be

stimulated by providing a legacy element in communication campaigns to increase their risk awareness and make more rational behavioral decisions. In addition, teachers' legacy motivation may be applied in the future in the field of sustainable social entrepreneurship to stimulate people's legacy mentality. For example, public interest organizations can use the legacy appeal to give people the social responsibility to have a greater choice of their products or services over other products with higher returns and higher risks.

Sixthly, project-based learning is a learner-centered approach to teaching and learning that enables authentic and challenging problems to be solved through a set of learning experience tasks and group work. Therefore, project-based learning can be used in higher vocational schools in Xinjiang, China, to crack the challenge of knowledge learning and skill application in digital competency training for teachers. For example, in the digital competence training of higher vocational teachers, on the one hand, around several research problems, teachers are allowed to work in groups to carry out literature searches and web-based questionnaire design. They are instructed to choose suitable software for data analysis and mapping, to integrate the digital competence training into their daily training. On the other hand, in reality, there are too few opportunities for senior teachers to receive learning after joining the profession, and teachers seldom have the energy to pay attention to the development of their digital competence in their work. This situation cannot be significantly improved in a short period, so it is unrealistic to hope for the improvement of digital competence of senior teachers through training after joining the profession. Therefore, it is recommended to take advantage of the pre-service training of senior teachers and include digital competence in the pre-service stage. At the same time, the development of teachers' digital competence cannot be expected to be gained in a short period, especially in the pre-service stage. As many opportunities as possible should be provided to arrange senior teachers to carry out internships on the teaching front line so that their digital competence can be continuously improved in a real teaching environment.

5.4 Limitations and future research directions

Limitations: firstly, all variables are measured at the same time point and dynamic data are not available. Therefore, in the future, a longitudinal research design could be used to observe dynamic changes in the variables. Secondly, there is a lack of a sample of college students. This group could be included in the future, including working graduate students. Thirdly, the facilitating effects of environmental factors on the green entrepreneurial intentions of higher education students are not considered. It is recommended that future research explore more about the facilitating effects of environmental factors, e.g., green or sustainable entrepreneurial ecosystems.

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